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EXAMINING FACTORS RELATING TO FURTHER DEVELOPMENT OF SOUTHERN FORESTRY

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BEFORE THE

SUBCOMMITTEE ON
SOIL AND WATER CONSERVATION,
FORESTRY, AND ENVIRONMENT

OF THE

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NUTRITION, AND FORESTRY
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EXAMINING FACTORS RELATING TO FURTHER DEVELOPMENT OF SOUTHERN FORESTRY

THURSDAY, OCTOBER 13, 1983

U.S. SENATE,
SUBCOMMITTEE ON SOIL AND WATER CONSERVATION,
FORESTRY, AND ENVIRONMENT OF THE
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Ellisville, Miss.

The subcommittee met, pursuant to notice, in the Jones Junior College, Hon. Thad Cochran presiding.

Present: Senator Cochran.

STATEMENT OF HON. THAD COCHRAN, A U.S. SENATOR FROM MISSISSIPPI

Senator COCHRAN. We would like to call the hearing to order at this time and get started. I want to, first of all, express our appreciation to the junior college for letting us use the facilities here in Ellisville this morning. We appreciate so much President Tisdale being here and letting us have the benefit of this fine meeting room. I want to point out that this hearing is being conducted under the auspices of the Committee on Agriculture, Nutrition, and Forestry of the U.S. Senate. Jesse Helms, the U.S. Senator from North Carolina, is chairman of the committee, and has authorized this hearing to be conducted, and we also appreciate the cooperation of Senator Roger Jepsen who is chairman of the subcommittee on which I serve and under which we're also conducting this hearing. Senator Jepsen is a Senator from the State of Iowa.

We have four panels of witnesses this morning. The first panel includes forestry professionals, the second panel includes forest landowners, the third panel includes forest industry professionals, and the fourth panel includes forest researchers. We're going to accept testimony from these panels, and after the first two panels have had an opportunity to make their presentations to the committee, we'll have a break, probably around 10:30, and then we expect to conclude the hearing around noon.

I want to thank each of you who have cooperated with the subcommittee in helping us plan the hearing and making the arrangements for it. Specifically, we appreciate those of you who are making up the panels this morning. We appreciate your agreeing to participate in the hearing.

Unlike many hearings, this one does not initiate discussion on a new topic or a new legislative proposal. It's not an effort to define a new problem for Mississippians to solve. The relative importance of forestry to the economy of Mississippi and to our way of life has long been recognized. The facts and figures have been related and analyzed by all levels of public and private entities. We all know that the impact of forestry in Mississippi is dramatic when we consider our possibilities for future employment and economic well being. Forestry is the second largest employer and contributes $1 billion annually to the economy of Mississippi.

Our purpose in scheduling this hearing is to assist in the progress of the industry that has the capacity to generate many desired benefits for Mississippi. Current studies conclude that the forest industry has potential for significant economic impact on the U.S. economy as well. Last year, Senator Mark Hatfield who's chairman of the Senate Committee on Appropriations and I, requested the Office of Technology Assessment of the U.S. Congress to conduct a study on how Government and industry could cooperate in a more effective way to bring about additional economic benefits as a result of our vast forest resources. This study was published in August and we have copies of summaries of that report which you may be interested in, and they're over here on this table. I invite you to take a copy or two if you're interested in having the conclusions of the Office of Technology Assessment. The conclusions reached include the fact that the U.S. timber industry has the capacity to make additional contributions to our economy because it is very productive, it is efficient, and has access to skilled labor and many other competitive advantages. However, the study does suggest that there should be more cooperation between private industry and Government to realize the full market growth potential. For example, Mississippi currently has 16.5 million acres of forest land, but is losing about 100,000 acres per year. This trend is not unique to Mississippi and if allowed to continue could severely impact on the expectation that the South will provide 50 percent of the wood for the Nation by the 21st century. Steps must be taken to insure this projection is realized. As the OTA study concludes, the ultimate success of forestry will depend on how well private industry and Government cooperate on critical issues such as barriers to foreign trade, wood utilization research, forestry technologies, and forestry information. I'm proud that we are one of the leading States in taking advantage of forestry resources and developing a very important wood and wood products industry.

We would now like to call the first witnesses, a panel of forestry professionals. You don't have to spread yourselves out as far as these mikes are, I don't think, but if you would sit here. Lamar Beasley who's Deputy Chief of Programs and Legislation of the Forest Service from Washington, D.C., Oscar Tissue, planner of the Mississippi Forestry Commission, and Glen Jones, executive vice president of the Mississippi Forestry Association. We appreciate your being here and if you have prepared statements, we will, of course, include those in the record in their entirety and would encourage you to make any summary comments or brief remarks as you may have so that at the conclusion of each statement we'll have time for questions and answers. Let's start with Mr. Beasley. Thank you very much for being here.

STATEMENT OF J. LAMAR BEASLEY, DEPUTY CHIEF, PROGRAMS AND LEGISLATION, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Mr. BEASLEY. Mr. Chairman, it's a real pleasure for me to be here today as well. I do have a rather detailed statement which I request be entered into the record and with your permission, I will summarize my comments from that more lengthy statement.[1] I have with me today Dr. Tom Hamilton who is Director of the Resources Program and Assessment staff in our Washington office. Dr. Hamilton has responsibility for conducting many of the analyses which we will share with you today. Through a series of charts and this discussion, we will attempt to summarize the findings from our studies of the timber outlook in the United States.

Timber is important to the economy, both on a statewide and a nationwide basis. As you pointed out, in Mississippi it is very important. It is the leading source of income in rural areas in Mississippi. In 1980, the value of logs and bolts alone at the processing plants exceeded one-half billion dollars, which ranked it ahead of cotton and soybeans. If you look at it in terms of the Nation, timber accounts for over a quarter of industrial raw materials that are consumed. In one form or another, such as housing, furniture, containers, books, writing paper or fuel, products made from wood are used by everyone.

What I'd like to do today is point out the outlook for the Nation's timber resource. In the late 1970's, the Forest Service completed a comprehensive review of the present and prospective timber situation. This is documented in a fairly large publication called the Resources Planning Act Assessment which was transmitted to Congress in early 1980. We are now in the process of updating this analysis which will be used as a part or a basis in preparing the 1985 RPA program which is also required to be submitted to Congress in early 1985. This is required in accordance wih the Resources Planning Act of 1974.

In the future, as in the past, demands and supplies of timber will largely be determined by a number of things, but the ones that seem to drive it most are population, economic activity, and income.

Present expectations about future changes in these basic determinants are not very much different today than those that we used in this short period of time. Looking at the chart,[1] the latest estimates this short period of time. Looking at the chart, the latest estimates of the Bureau of Census showed population continuing to grow with the midlevel projection, which is the bold line on the chart, reaching 304 million by the year 2030. We also have shown both lower and higher projections from the Bureau of Census. The basic projections by the Bureau of Economic Analysis showed economic activity will nearly quadruple by 2030, again the bold line, and total income available for spending, or personal disposable income, is projected to be nearly four times larger by 2030. Per capita income will increase almost three times. There's a lot of debate concerning these projections which are made by the Bureau of Economic Analysis. They're used throughout government. You can look at what is occuring at the present time and question whether or not, in looking four decades into the future, this kind of growth can continue, but if you look in the past, back in the 1920's, and project that into the midseventies, you might have the same question. While these projections are debated in terms of whether or not they would support the analysis we do, they are provided for use by all Government agencies, and we have adopted them for use in the assessment.

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[1] See p. 51 for the prepared statement of Mr. Beasley and p. 57 for reprints of the charts.

Much is uncertain about the future but these projections of population, economic activity and the income, do provide us a rough measure of the job ahead. That is, meeting the timber needs of another 70 million people and the demands of 304 million with purchasing power nearly triple that of today. Using the example of pulpwood, you can see what the longrun demands for this product would be and it would be very similar for other major timber products which are expected to increase over the next five decades, much as they have in the past. Of course, the demand for some products rise more rapidly than others. Total demand for timber is expected to increase from 15.7 billion cubic feet in 1980 to 25.8 billion cubic feet in 2030, an increase of over 60 percent. The demand for softwood timber is projected to increase from 10.7 billion cubic feet in 1980 to 15.1 billion cubic feet in 2030. Hardwood timber demands will increase from 5 billion cubic feet to 10.7 billion cubic feet, a doubling of the demand.

The latest projections show that net imports will increase to 1.6 billion cubic feet by the year 2030. This will satisfy part, but only a small part of these higher demands which we've projected for the future. In other words, we must rely more and more on domestic supplies to meet these projected demands.

However, we have great opportunities. We have a huge domestic forest resource, over 480 million acres of commercial timberland in the United States and we have over 790 billion cubic feet of timber inventory at this time. A comparison of net annual timber growth with timber removals shows that the hardwood forest resource and eastern softwood forests can support additional timber harvests. In other words, the capacity is there.

Total softwood roundwood harvests are projected to rise from 9.6 billion cubic feet in 1980 to 11.9 billion cubic feet in 2030, which is an increase of about 24 percent. The projected annual softwood timber harvest in the Douglas-fir subregion of the West remains close to the 1980 level of 2.3 billion cubic feet until 1990 and then there's a slight decline to 2 billion cubic feet by 2030. Now, contrast that to the softwood timber harvest in the South where harvests are projected to rise from 4.1 billion cubic feet in 1980 to 7.3 billion in 2030, almost a doubling. So, by using the assumptions based on what has occurred in the past and projecting those into the future, you can see that future timber demands would have to be met principally in the South. Now there could be some changes in the Douglas-fir area simply because we are currently planning activities on national forest lands and there are different alternatives being analyzed in these forest plans, some of which could lead to increasing harvest in the Douglas-fir region. These plans have not been completed as of yet.

The data on projected harvests make it clear that there's not likely to be a physical shortage of timber in the United States. This is a conclusion which we've reached in prior analyses such as this. There could be, of course, some problems on a worldwide basis which we do recognize. If you compare projected supplies with projected demands, it shows that demands are, however, rising more rapidly than supplies. And, of course, what this means is that there would be an increasing economic scarcity with rising timber and timber product prices.

Now the outlook for softwoods shows that future demands on domestic forests will rise to 11.7 billion cubic feet by the year 2000 and 13.9 billion by 2030. Projected supplies of softwood roundwood from domestic forests, which is the lower line on the chart, show more moderate increases to 11 billion cubic feet in the year 2000 and 11.9 billion cubic feet in the year 2030. What this means is that prices will rise to the extent that's necessary to bring about an equilibrium, which is the middle line, between demands and supplies. For example, in the South, the real price increases for softwood sawtimber stumpage, this is measured net of inflation and deflation, will increase at an average rate of about 2.1 percent per year during the five decades that we've projected. It's important to note that all regions do show an increase.

Similar conditions exist for hardwoods, especially the demand for a high-quality species such as white and red oaks, walnut and hard maple, black cherry, and so forth.

The demand-supply price outlook, which we've just covered here, is based on assumptions and projections of a large number of determinants which we've mentioned already. What actually happens in the future, of course, can be quite different based on how these assumptions that we've used change in the future. We recognize these uncertainties in making our analysis and we have simulated a number of other types of futures. In doing this, we found that nearly all of these simulations show about the same thing; that the Nation is faced with the prospect of continuing substantial real increases in stumpage prices for most species and sizes of timber and in the prices of most timber products. Of course, these price increases are likely to be largest for softwood sawtimber as well as high-quality hardwood sawtimber of preferred species and products which mainly would be lumber and plywood. The general outlook of increasing economic scarcity and rising prices simply describes what's likely to happen if we continue to manage our forests in the future much as we have done in the past couple of decades. As we well know, it's possible to change this outlook and there's some important reasons that we do so. Consumers will or could be most adversely affected by the price increases. By 2030, they could pay several billion dollars more for timber products and substitute materials which are needed to produce the goods that they will consume and continue to consume. Of course, the market will determine both the supply and demand levels which will in turn, determine the prices which consumers would be paying. There also could be some important adverse impacts on the environment, employment levels in forested regions, international trade in timber products, the primary timber processing industries, and the timber resource itself. The largest impacts on the timber resource could very well be in the South. By 2030, with rising real prices, growing stock inventories on private ownerships will be reduced by about 45 percent below that projected without rising real prices. The chart points that out. The blue line shows what would happen without rising real prices, and the yellow line shows what would occur as rising real prices bring about the equilibrium level.

The decline reffects, in part, the pine regeneration problem which has been evident here in the South and recognized for some time. A large portion of the land from which pine is harvested is simply not being regenerated to pine. Much of the South's present pine stands resulted from natural seeding on abandoned cropland. Unless there's deliberate management action on the part of land owners after the harvest of pine, the natural succession is to oak-pine or hardwoods.

The projections shown earlier indicate where we could be headed. We do not really expect softwood inventories to drop as shown in the bottom line of the chart, or that prices will rise to the extent our projection showed because there are many opportunities and many things that we all can do which can change such prospects. Some of these are described in my statement. For example, we can look at extending timber supplies. This could come about by increasing the useful life of wood products by preservative treatments, improving designs of new structures, and renovating and maintaining existing structures rather than looking at the total replacements. Improved efficiency can be achieved in harvesting, milling, construction, and manufacturing, and in utilizing unused wood materials such as logging residues, treetops, and limbs. A second example is that net annual timber growth on most of the 482 million acres of commercial forest lands can be greatly increased. Growth can be increased by regenerating nonstocked and poorly stocked areas, by harvesting to regenerate mature stands, by converting existing stands to more desired species, by applying more intensive timber management practices such as species and spacing regulation, by fertilization, by use of genetically improved planting stock, and by using management and harvesting practices to prevent or reduce losses caused by natural mortality such as wildfire, insects, and diseases. A third example is that harvests from the existing timber resource can be increased. This can be done by accelerating harvests on national forests in the States of Washington, Oregon, northern California, northern Idaho, and western Montana where there are large inventories of old-growth softwood timber. Some additional harvests can also be obtained by increasing softwood and hardwood timber harvests on forests in the East.

In these latter cases, sustained increased harvests on national forests in the West and on forest lands in the East beyond a few decades will require large investments and more intensive management programs if we are to increase the net annual timber growth.

Only part of the biological opportunities to increase net annual timber growth can be expected to yield an acceptable rate of return on the investments which would be necessary for us to put them into practice. A few years ago, we completed a joint Forest Service, forest industry, State forester study; covering 25 States and looking at where economic opportunities were making such investments existed. The results of that study show that there are opportunities which would yield 4 percent or more, measured in constant dollars, net of inflation or deflation, on 168 million acres of commercial timberland. And if you look at the chart, most of these economic opportunities occur on 117 million acres in the South. And most of these opportunities, 89 million acres, are on the nonindustrial private ownerships. Similar economic opportunities occur on about 24 million acres of forest industry ownership.

In summary, even if you allow for the uncertainties that we've talked about, it's evident that large opportunities do exist to invest in timber management practices that will yield good returns and result in major increases in softwood supplies. And it's also clear that from our analysis that we're not really taking full advantage of these opportunities. In many cases, we're largely letting natural successional forces determine the kinds of forest which we will have in the future. If you look at this trend in terms of the South, we could be faced in the future with hardwoods dominating more of the forest. This is not to say that this is undesirable, but to merely point out that it would be a change which would require policy changes, and that this trend should be recognized so we can determine the future course we would like to see occur in the South.

Mr. Chairman, this concludes my statement and I'll be glad to respond to questions if you so desire.

Senator COCHRAN. Thank you very much, Mr. Beasley. We appreciate your giving us the overview of our Nation's forest resource situation looking at supply and demand projections for timber around the country. Now I think before we go into questions, we'll move on to Oscar Tissue who is a planner for the Mississippi Forestry Commission. He and Glen Jones are here to give us their impression of the economic health and general condition of Mississippi forestry. They will assess our competitiveness in world and domestic markets and identify factors which will have an impact on our trade opportunities. Mr. Tissue, welcome to the hearing.

STATEMENT OF OSCAR C. TISSUE, PLANNER, MISSISSIPPI FORESTRY COMMISSION

Mr. TISSUE. Thank you, Mr. Chairman.[1] The first topic I'll address is the economic health and general condition of Mississippi forestry, considering the importance of this resource to the economy now and what it could mean in the future and some of the numbers I might repeat are what was previously said, but hopefully not.

Mississippi in 1977, had 16.5 million acres in commercial forest land, that amounts to 54 percent of our total land area for the State. The commercial forest land decreased around 39,000 acres per year between 1966 and 1976, and a decrease of 20,000 acres annually probably continues. That would be for agriculture, urbanization and other nonforest uses. We know that based on these 10-year studies that back in 1977 that our softwood growth, which is primarily pine in Mississippi, increased only 12.5 percent while the harvest increased 96 percent. The softwood drain was rapidly approaching growth and drain would exceed the growth in the early 1980's, and that probably has happened. We won't really know whether it has or not until a midcycle survey, which is being completed and reports get in hopefully in another month or two, just exactly where we are. There are over 130,000 private nonindustrial landowners in Mississippi who own 11.8 million acres of land, commercial forest land, that's 72 percent. We know from studies that 31.2 percent of these landowners are in a position to implement needed improvements, provided some funding is available to us. These private nonindustrial forest landowners annually convert 106,000 acres of pine type of low-quality hardwood following harvest. In 1983, only 50,000 of these acres were reforested after harvest. We know that 9.2 million acres of this private land is best suited for growing pines. One million acres are producing at near their potential growth rate. The other 8.2 million acres need some kind of work, stand reforestation, timber stand improvement, reforestation after harvest or conversion from low-quality hardwood to pine. We also know, found out, between 1966 and 1976 there was a 40-percent decrease in the number of pines in the 2- and 4-inch diameter class that will result within 15 to 20 years, in a problem of meeting the demand for timber into which these diameters would normally have grown.

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[1] See p. 73 for the prepared statement of Mr. Tissue.

There are about approximately 2 million acres of marginal crop land and pasture in the 4e, 6e, and 7e soil subclass series that should be planted in pines. These acres presently provide negative net dollar returns, that's for crops, and the erosion of these lands exceeds the maximum acceptable rate of 2 tons per acre annually. Regarding the economic importance of forestry in Mississippi, we can't overstress that. For example, in 1980, forestry was the No. 1 agriculture crop at the first processing point, valued at $535 million. It ranked first in 34 of the 82 counties in the State. Now it doesn't hold that way all the time because it's like the housing industry; as it goes up, forestry stays up there and as the housing industry drops, why then the value of the forestry crop decreases also and that lets soybeans and cotton get ahead of it and in 1982, I will say this, that poultry and eggs beat us out by $21 million, so we ranked No. 4 in 1982, but it is that cyclic approach of hills and valleys. As mentioned earlier, it's the second largest employer in Mississippi. One of every five manufacturing jobs is provided by the forestry industry. I might say this, that for every dollar paid as wages to forestry labor, the total household income increases $3.95. For every new forestry job created, four to five new jobs become available in nonforestry sections. For each $1 timber stumpage paid, $0.43 in State tax revenue is generated. Very important in Mississippi.

In 1976, which was the latest year for which the roundwood timber production and consumption figures are available for the United States, the South contributed 44 percent and by the year 2030, its projected share will increase to 56 percent. Softwoods are projected to come mostly from the South; 80 percent of the net increase of demand and most of this projected increase will come from private nonindustrial forest land.

In 1976, Mississippi supplied 5.3 percent of the total U.S. roundwood consumption, 4.6 percent of softwood, and 7.3 percent of the hardwood. Based on U.S. Forest Service's median demand projections, Mississippi's pro rata share will increase to 48.6 percent by the year 2010. That will be a 70-percent increase for softwoods and a 149-percent increase for hardwoods. By the year 2030, it will be another 6.3-percent increase, above the 1976 production. That's a tremendous amount of wood that's going to have to come from Mississippi.

The softwood demands are expected to increase 4.5 billion cubic feet and hardwood demands 6 billion cubic feet by 2030, according to the 1980 Resources Planning Act equilibrium projections the levels of increased consumption and use at which demands and supplies will be in balance with the continuation of the current timber management trends.

Now that's 150 percent of current consumption for softwoods and 300 percent for hardwoods. That's an enormous increase. If it happens, about 60 to 70 percent is expected to come by the year 2010, or less than 30 years hence. And I might say, I mentioned 2010 because some of us are still going to be around here and have a great deal to do with that growth and contribute to its achievement, but what it means is that the economic growth and development in the forestry sector of the economy by 2010 will be a 33-percent increase in the softwood industry capacity, jobs and income, and about twice that in the hardwood industry capacity jobs and incomes and that's what we're concerned about in Mississippi; we want our fair share of that, so that's why I bring this out.

I might say this, that Mississippi is dedicated to provide the timber needs for itself as well as its share and possibly more of the projected demand for the Nation because we know it's going to bring increased dollars to our State's economy, additional jobs for our people, sustained increased tax revenues to support State and local government and, best of all, a better quality of life for all our people. So our primary thrust, as we're looking at it, is to increase the rate of management and productivity levels of this 8.2 million acres of private nonindustrial commercial land. And to that we need to add doing something about this 2 million acres of marginal cropland and pasture because those are cheap acres to reforest as compared to cutover forest lands.

Well, to this purpose, the forestry commission in 1980 relieved our county foresters of most of their public land responsibilities, and some other things, so that they could concentrate more of their limited time to one-on-one on private landowners. Mississippi Forestry Commission does provide many services, some free and others fee, to the landowners in management and improving the productivity of the land.

Also, the Mississippi Forestry Association has instituted a State forestry productivity committee. This in turn has formed county committees composed of volunteers from industry, consultants, and the State and Federal agencies. Basically, they collect timber harvesting data from different sources about landowners and locations and then they try to contact these landowners and try to get them to reforest the lands if they need it.

Now as mentioned earlier, I talked a little bit about the pathways for forestry and I'm going to say something very briefly about that and this is part of our overall goal and it ties in with the long-range planning for the State of Mississippi, our State planning for our forest resources and, as you know, we have to think about these resources as meaning something to everyone. They are trees in the parks and the city. They provide timber for the forest industry, they are out there for the benefit of wildlife and it's a living organism that affects us all every day. Well, in our approach in Mississippi is what we call the pathways for forestry. Gov. William Winter convened a symposium on April 5 and 6, 1983. He personally invited 75 participants who are unquestioned leaders in forestry that represented industry, education, banking, all levels of government and landowners, the consultant industry, from all over the State, to share their expertise collectively. And as a result of this symposium, there were 21 goals that came out and actions that are needed to be taken so we could will our future. We don't want the future to dictate to us; we want to try to control it. Well, as a result of the outcomes, there were eight major task forces formed and they cover education, forest productivity, transportation, foreign trade, marketing, and taxation policy. One of them was the continuing forum composed of the core team to keep monitoring the progress of the plan and see that things come about. The idea is when the plan is finally developed, the entire forestry community will have a part in carrying it out. Everybody will have designated responsibilities and it will all lead to increasing the productivity of the land, but at the same time will end up with a better way of life for ourselves and we're looking into the 21st century. Task forces have been formed. The Governor invited the chairman and members to be on his task forces and to examine the problems of all these actions and goals and come up with answers, reports, by May 30, 1984, so we can finalize it and get moving into the 21st century. I'll be glad to talk about it with anyone that wants to later on.

Senator COCHRAN. Is there available at all, Mr. Tissue, or can you identify where we can obtain a copy of the symposium's report, or was there a report issued, containing an outline of these 21 goals and task forces?

Mr. TISSUE. There will be. We're preparing an 8- to 10-page document right now trying to summarize it all for distribution and our goal is to have that done in November. Then this will be——

Senator COCHRAN. The reason I asked, I was going to include a copy of that in the transcript of these hearings, but it probably won't be available in time, would it?

Mr. TISSUE. If I'm able to get a draft out by the end——

Senator COCHRAN. If you'd send me one as soon as you get it, I would appreciate it very much. We might be able to include it as an exhibit to the transcript of these hearings.[1]

Mr. JONES. Excuse me, but there is a draft copy which could be made available which could——

Senator COCHRAN. Well, it doesn't have to be pretty, you know.

Mr. TISSUE. Well, we have the draft proceedings put out, but it's an unedited version of it. It's a matter of the procedure we went through, and all that, which is fairly bulky which we asked for comments from the participants so that we could take it and come up with this 8- or 10-page document. The draft proceedings is really a backup document if there's any questions, which would be available to people later on and it has copies of the speeches that were made and things like that.

Senator COCHRAN. I don't think we want to have all that, but anything that's sort of a summary document would be very helpful to us.

Mr. TISSUE. Well, we'll get that to you.

Senator COCHRAN. Thank you.

Mr. TISSUE. Appreciate your interest in that. Now we know that there have been many studies made to reveal reasons why private landowners don't reforest their lands. But in our organization, we feel that more one-on-one contact and technical assistance by professional foresters is the correct step to take, and that's why we relieved our county foresters of some of their responsibilities to work more one-on-one with landowners. Just recently, a study of 759 private landowners who had harvested timber in the South, including Mississippi, revealed that where professional foresters advised landowners, pine reforestation increased significantly. Now we do have a special project of two service foresters financed 50/50 with Federal cost sharing. They spend all their time working one-on-one with private landowners and the results today are pointing toward good payoffs in their assigned counties as compared to what county foresters can accomplish in the limited time the county foresters have to devote to private landowners.

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[1] See pp. 81–97 for the report from the Mississippi Forestry Commission.

Well, unfortunately, there are constraints as to how much Mississippi can accomplish in increasing the productivity of the private lands. These constraints are basically dollars and time. The volunteers in the county productivity committees are limited as to the amount of time they can provide to one-on-one with private landowners, I'm talking about the nonindustrial private, because these volunteers have other obligations to fulfill for their respective firms or agencies, and that's the same way with us, our foresters.

The Mississippi Legislature has recognized the importance of forestry and the forestry commission's role by increased funding over the past several years. For example, from 1978 to 1983, our total budget, excluding Federal funding, increased 81 percent. This has helped us to get more private nonindustrial acres under management into higher productivity levels.

Over the same period, Federal funding for cooperative programs decreased 47 percent. In 1978, Federal funding amounted to 17.7 percent of our total budget. In 1983, it's only 5.1 percent. The U.S. Government continues to reduce or see fit to eliminate Federal dollars for certain programs that benefit the Nation, both now and in the future. For example, rural fire prevention and control funds—they should be increased so that we will have sufficient well-trained forces to suppress fires quickly, especially in the young pine plantations, of which there are going to be many more acres to contend with as we increase our annual rate of reforestation. Rural forestry assistance funds should be increased, especially to provide for service foresters whose role would be devoted to working one-on-one with private landowners. In addition, these fellows could be working with these marginal cropland and pasture owners about changing their use of these acres to pines, which as I mentioned earlier, cheap acres to reforest as compared to cutover and harvested lands. We need continued nursery funding to assure that the production of high-quality seedlings that will be required in increased reforestation, and I'm talking about pine seedlings, and planning assistance funds should not be discontinued but beefed up to help in State planning for forest resources, in our case, the pathways for forestry. Successful plans don't end or cease with a printed document; they have to be activated, the progress monitored and revised as conditions change over the years. That's all I'll say about that particular topic.

The second topic I'll address is the U.S. competitiveness in world wood markets and factors that impact performance in foreign trade as well as domestic trade. The United States is a major importer and exporter of wood products. Since 1950, U.S. exports of forest products, in constant—deflated—dollars, rose 400 percent; imports increased by nearly 75 percent. An unprecedented opportunity exists for the United States to expand its exports of many forest products. And, of course, that is one of the things that one of our task forces is looking at—is increasing the rate of exports.

World demand for wood and solid wood products is expected to grow rapidly, by as much as a 50-percent increase in consumption by the year 2000. The projections are that world demand for inudstrial roundwood will grow about 2 percent per year for the next 20 years and consumptions of paper and paperboard will increase by 75 percent, wood-based panels by 55 percent, and lumber by 25 percent by 2000.

Second, many established wood-producing nations such as the Western Soviet Union and the Far East are faced with diminishing wood supplies. Although Latin America, South America, and the Eastern Soviet Union have vast acreages of forests, they are remote and inaccessible and the investment needed to bring these forests into commercial production may be prohibitive.

Third, the United States has an abundant wood resource and a highly developed manufacturing capacity compared with most other countries. The forest resource is available for expanded production and the inventory is increasing and accessible.

Most of the world's increased forest consumption probably will come from industrialized nations, with Western Europe and Japan being the major foreign markets for U.S. forest products in the future.

The world trade in forest products is shaped by the general forces of supply and demand, tariffs and traditional quotas, nontariff barriers or distortions and economic and governmental performance. Now the General Agreement on Tariffs and Trade which we know as GATT, G-A-T-T, that's both a treaty and an organization, has been very effective in reducing its members' tariffs and traditional quotas, and it resulted in an impressive growth of international trade. However, the growth of nontariff barriers, which are known as NTB's, often poses a more potent threat to free trade than tariffs and quotas. Governmental policies and worldwide economic conditions also exert powerful influences.

In general, tariffs and traditional quotas restrict imports of processed products more than raw materials. The processing of raw materials such as logs, pulpwood, woodchips and woodpulp allows nations to capture the value added employment.

Nontariff barriers, or the NTB's, distortions are growing in importance because they are often difficult to identify and their effects equally difficult to measure. There are seven types of NTB's.

1. QUANTITATIVE RESTRICTIONS

These have become very popular in recent years with the most frequently used types being new forms of quotas, embargoes, orderly marketing agreements, and voluntary export restraints. Most countries use embargoes for forest products, primarily to protect their own domestic resources and processing industries.

2. NONTARIFF CHARGES ON IMPORTS

These often take the form of taxes levied at various points in the products distribution channel.

3. GOVERNMENT PARTICIPATION IN TRADE

This involves countertrade, kind of a form of barter, purchases by national enterprises or trading companies, and Government procurement policies.

4. PRODUCT STANDARDS

Health, safety and other products standards such as the amount of hardwood pulp in kraft linerboard, may not be allowed to exceed 20 percent, plywood knots, white pockets, such as fungus remnants in Douglas-fir plywood often limited imports. Sometimes, all product standards are not developed just for specifically blocking imports.

5. ADMINISTRATIVE PRACTICES

These are rules that a country establishes and the way they are implemented and enforced can act as trade barriers. The most common types include arbitrary methods of custom evaluation, product classification, inspection procedures and licensing procedures.

6. OCEAN FREIGHT RATES

Nations have conferences and they usually set the one-way ocean freight rates for certain commodities. These rates apparently discriminate against many of our U.S. producers because of higher U.S. shipping charges in exporting certain grades of paper, particularly printing, writing, and specialty type papers.

7. RESTRICTIONS ON EXPORT-RELATED SERVICES

Exporters require a broad range of services in the marketing of their products successfully overseas. Many countries do have barriers against American banks and insurance companies and may also put limitations on the ability of foreign firms to get local financing and insurance.

Now worldwide or global economy involves five important factors that affect the volume and types of products traded.

1. GLOBAL ECONOMIC CONDITIONS

No. 1, it's becoming increasingly difficult for nations to maintain separate economic identities. For example, one-seventh of all U.S. jobs rely upon exports; and that situation is similar in most of the world's developed economies. The recent global recession has damaged nearly all segments of the wood industry, and this recession is further complicated by the world financial situation, particularly high interest rates.

2. CURRENCY EXCHANGE RATES

The U.S. dollar value relative to other currencies affects the prices and competitiveness of American goods overseas. As long as U.S. interest rates are significantly higher than foreign interest rates, the dollar will probably remain strong.

3. PRIVATE BUSINESS ATTITUDES

The way the rest of the world perceives our private business attitudes has a major impact on trade and will have to be overcome. It seems that the U.S. forest products industry needs to be more reliable and willing to make long-term commitments that many of the importers want. If things get real good in the United States, they may just cancel shipping to other nations is what I'm trying to say. They'd use the products locally.

4. GOVERNMENT POLICIES THAT HINDER EXPORTS

The Government shapes the world perceptions of the United States as an unwilling trading partner, well at times. The United States seems to have an increased willingness to use export controls or readiness to use them as an instrument of foreign policy, maybe as a shotgun you might say, and it's harmed all U.S. exports to some degree.

5. GOVERNMENT ASSISTANCE TO EXPORTERS

There are some U.S. Government agencies that affect trade policies and offer assistance to exporters, but the U.S. Government does not provide the level of export assistance that some other governments do.

So as far as exports, a wide variety of trade barriers exist which limits the ability of the United States to expand its exports of processed products such as lumber, panels and paper but not products raw materials such as logs, pulpwood and woodpulp and woodchips.

Regarding domestic trade, as I mentioned earlier, I don't think there are going to be any real problems in that and there will be no major changes in the patterns of U.S. imports of lumber, pulpwood, paper to compete with our domestic. We'll still be taking in substantial quantities of lumber, pulpwood, newsprint from Canada. The Canadian products are very competitive to the U.S. markets because of their proximity to major consuming regions of the United States, the availability of low-cost transportation and the distribution of the Canadian softwood resource.

Senator COCHRAN. Thank you very much, Mr. Tissue, for your presentation. We will now hear from Glen Jones who is executive vice president of the Mississippi Forestry Association.

STATEMENT OF GLEN JONES, EXECUTIVE VICE PRESIDENT, MISSISSIPPI FORESTRY ASSOCIATION

Mr. JONES. Thank you, Senator. I appreciate very much the opportunity to appear before you today to discuss the Mississippi forest economy and the desirability of becoming more competitive in world forest products market. I represent Mississippi Forestry Association which is a statewide organization which concerns itself with meaningful conservation and utilization of natural resources. Membership in the Mississippi Forestry Association numbers approximately 2,000 individuals and companies that are engaged in good forestry management. In addition to that, we administer the tree farm program and have over 5,000 certified tree farmers in Mississippi, the largest number of any State in the Nation.

Forestry, to a great degree, is responsible for protecting and improving the quality of life that Mississippians enjoy, both economically and environmentally. Forest activities are located in all areas of the State, and they affect our economy statewide.

As has been mentioned, about 16.7 million acres or about 55 percent of our land area is in forest lands. Of these, approximately 10 percent are owned by units of State, local, and Federal Government; 18 percent by forest industries; and 72 percent by private nonindustrial individual landowners. This pattern of ownership has a definite effect upon the quality of management that our forest lands receive, and it indicates that increased timber production is largely in the hands of more than 100,000 private landowners who own the majority of Mississippi's timbered acreage.

At present, Mississippi's forest land is producing at about 60 percent of potential. While this is a relatively low figure, it leads the South which produces at 57 percent of potential, and it leads the United States, which produces at 49 percent of potential.

Slightly more than one in five, or 20 percent, of Mississippi's factory workers are found in plants involved in processing raw materials from our forests. This does not include workers in service or supply industries partially or wholly dependent upon the forest industry.

Generally, forest industry employees in Mississippi have slightly higher average earnings than the average industry worker. The average employee in the paper and allied products industries has the highest average earnings in the State, approximately 150 percent of the State's average manufacturing wage.

Mississippi's forest industry firms are well distributed over the State, and are usually found in rural, or less populated areas. More than 70 percent of the State's forest industry employees reside in rural areas. The only employment in manufacturing in many communities in our State is that which is related to forest activities. The percentage of minorities in the work force is higher in forest-related occupations than the State average of all industries. Incomes of rural residents who work for the forest industry generally are spent in urban, or trade centers. Therefore, the State's entire economy benefits from forestry employment.

The combined annual capital expenditure of the Mississippi forest industry generally exceeds that of any other manufacturing industry category, and in recent years has accounted for more than 25 percent of the total annual investment in Mississippi factories. Proximity to raw material is perhaps the major factor contributing to these sizable investments. Within recent weeks, for instance, three major plants have been announced, one new paper plant is in its first year of operation in Mississippi, and another is expected to start up within the next several months.

Forestry is very important to the economic well-being of Mississippi. It can also be a force in helping the United States achieve a better balance-of-payments position. International trade of wood products is projected to increase. World demands for paper and paper products, products for which Mississippi, incidentally, has a comparative competitive advantage, is expected to rise steeply. Mississippi's ports provide an opportunity for gaining an increasing share of the growing world market for wood and wood products.

While I'm not an expert on international trade, the following remarks are based on research and reading on the subject, and from discussion with people who are deeply involved in international trade. By commodities groups, lumber was the most important southern wood export in 1980, amounting to 41 percent of total shipments. Miscellaneous wood products, and this would include such things as prefabricated wood structures, cooperage, charcoal, to name a few, accounts for almost one-third of the total value of sales abroad from the South. Wood panel products, this would be veneer, plywood, and particle wood, have exhibited the fastest growth among the major export groups, while roundwood products, and this would be such things as hardwood logs and woodchips, have experienced the slowest growth.

The United States for a number of years has been a net importer of forest products and remains in that position today. However, the gap between imports and exports is narrowing considerably, and there are projections that the United States could become a net exporter as early as 1990. Such a shift would necessarily impact the South, and especially the State of Mississippi.

It appears that cooperative action by industry and government will be vital to attaining the goal of becoming a net forest products exporter. Development of foreign markets and ingenuity in recognizing and developing new markets is the responsibility of industry. Government action, however, is vital to overcoming and removing trade barriers including tariffs and standards set by countries which are logical export market targets. Investments must be made by industries to produce for these markets, but they need assurances that such prospective markets will not capriciously disappear.

Here's an example: The Japanese construction industry is geared toward the use of 3- by 6-foot panels; U.S. and Canadian factories are geared toward production of 4- by 8-foot panels which are standard in construction here. According to William Robinson, vice president and general manager of the American Plywood Association, there is presently no, or not very much, incentive for U.S. manufacturers to make the capital investments for lathes and presses for the 3- by 6-foot size, unless the issue of standards established by the Japanese Government for imports can be completely resolved, and tariffs can be reduced to make marketing of American products possible in Japan.

Japanese plywood standards are written around luaun wood. This is a hardwood species that grows in Southeast Asia. It doesn't have the knots and knotholes found in the American softwood plywood. Japan has a plywood industry which imports the wood from Southeast Asia and exports the plywood to the United States in about 20 times the quantity that we ship to them. Their tariff is 15 percent; our tariffs on their products is 8 percent.

Now let's look at overseas shipment of southern pulpwood. Prior to about 1975, sales of southern pulpwood abroad were limited to occasional shipments of roundwood and chips, according to James E.

Granskog and Daniel F. Bertelson. A surplus of southern chips about that time coincided with the appearance of chronic Scandinavian shortages. Scandinavia has traditionally supplied the European wood market. Most chip exports to date, from the South, have gone to Sweden.

Future wood chips exports from the South will be influenced largely by Western Europe's consumption of pulp and paper, and how that market will be supplied.

Now according to Granskog and Bertelson:

> The southern pulp and paper industry is generally acknowledged to be a low cost producer for many commodities. Such cost efficiency by itself would favor the export of manufactured products rather than the raw material, but tariff and other factors affect the pattern of trade. Tariffs in favor in Western Europe, tariffs in force in Western Europe, tend to favor imports of pulp from the United States and paper products from Scandinavia.

Now, the long-term prospects of this situation may favor Scandinavian investment in pulpwood facilities here in the South. A good example of this is the Leaf River Forest Products plant under construction in New Augusta. This is a joint venture between United States and Finnish companies.

Other factors that may affect future shipment of southern chips and pulp products, according to Granskog and Bertelson, include the level of economic activity in Western Europe, nontariff barriers, exchange rate fluctuations, and the export aggressiveness of U.S. manufacturers. But the most pervasive factor determining the long-term outlook, they feel, may be the economics associated with processing pulpwood close to its source in transporting pulp and other products to the marketplace.

Now, these same economics apply to all timber products, including lumber. Processing forest products as close as possible to the raw material source will result in more manufacturing jobs and a stronger, more stable economy for Mississippi and the South, as primary producers of forest raw materials in the future. But it cannot develop fully without Government attention to and diligence in removing artificially imposed trade restraints. Trade restraints, developed during the Marshall plan era, are outdated, and it is time that our Government recognize that we do have commercial interests in the world which need protection.

Thank you very much for the opportunity to present this testimony to you today. We highly commend you and your subcommittee and the Congress' Office of Technology Assessment for your efforts in gaining a fair, competitive position in world markets for U.S. timber products. These efforts are very important to the private, nonindustrial forest landowner of the South. Thank you.

Senator Cochran. Thank you very much, Glen Jones, for that fine presentation. We appreciate all of you on this panel being here and presenting this opening series of statements to the committee. I think you have appropriately set the stage by giving an overview of the national supply and demand situation and the projections that Lamar Beasley did so well describing the future of our utilization of timberlands and wood and wood products from a nationwide perspective. And then bringing that down to Mississippi's level with the Mississippi Forestry Commission representative, Oscar Tissue, and Mississippi Forestry Association being represented by Glen Jones, has, I think, set the stage for this hearing and has impressed upon me, certainly, the importance of forestry and the wood and wood products industries to our State's economy. I don't know of any other single economic activity that's more important. I think that's the impression that's left from the testimony that we have heard so far. I was interested in Mr. Tissue's observation about the fact that we have a continuing problem with marginal land being cultivated or used as pasture that ought to be growing pine trees. I know some of you may have been aware of the hearings that we've been having around the country looking at ways to improve our soil conservation efforts, and I just recently toured some areas of north Mississippi where they have way above-average rates of erosion of top soil, and that was one of the primary reasons and the challenge to all of us, I suppose, is how do you help get the landowner to change the way they're utilizing the land. You mentioned the Federal Government appropriating more money for one-on-one counseling systems, sort of an Extension Service program. Is that not already being done to some extent by either the Extension Service or through other counseling activities? Doesn't the landowner really know what the facts are, but because of economic conditions, he just can't afford not to take the chance on growing something other than pine trees?

Mr. TISSUE. Well, I feel like that the custom use, it's customary for him to do it. He maybe doesn't realize that he's losing the money he's losing, but the one-on-one approach is the idea that you have a county, say they've got 1,500 landowners out there. Well, how does one county forester and one county agent, how do they contact all these people over a period of time? It takes forever and with more people out there working one-on-one to get to that man, explain to him the economics, show him the economic advantage. You can do that. Make him a management plan on his land and show him and lay out step-by-step and where this income will be coming in and what have you. Some people, like I say, they do it I say out of necessity but why waste money when you can't make a profit on it, and that's what it boils down to.

Senator COCHRAN. Would it serve the same purpose or achieve the same goal if you had a policy that would prohibit the Farmers Home Administration from financing the use of land that's inconsistent with soil conservation or other good management practices?

Mr. TISSUE. I don't want to get into regulations.

Senator COCHRAN. Wouldn't that be more effective, though, just between you and me? The camera's aimed in another direction. I'm not advocating it, I'm just wondering, just making an observation.

Mr. TISSUE. Let me answer it this way. We had the soil banks program years ago in the late 1950's and if the landowner wanted to put his land in trees, take good land out and put it in trees, the forester—it was really designed to take the cropland out of production. We were mandated by the legislation within the program, we had to go out and make the recommendations for that man on how many trees to plant per acre. We had no authority, no say-so, and say, no, you shouldn't do this, you should retain this in crop. At the same time this man was taking out cropland and putting it into trees, which benefited us, the Extension Service was going out there and showing him how to grow more crops on fewer acres, increasing production. So what did we do? Did we actually reduce the production of crops, or did we just—where was the tradeoff then? And maybe the land should have stayed in crops and other lands that were in crops that were not suitable; it was better suitable for timber should have gone into that, but we had no authortiy, we just had to put in his application, this is where it is, and go out and make the—and do it. So, I'm hedging on you.

Senator COCHRAN. I know. One of the arguments that goes on in Congress right now is over the level of funding of the forestry incentives program. I have been supporting, as chairman of the Agriculture Appropriations Subcommittee, more funds for that program, but I, during hearings this past spring, heard the argument advanced that this is a disincentive in many cases to reforestation by small landowners because they're waiting in line to get some money to help pay the costs of reforestation of their small tracts and there is not but $10 to $12 billion each year made available under the program, and that's not enough to go around, but they think that maybe if they wait 2 or 3 years, their name will come up on the list and they'll qualify for financial assistance under that program, and so rather than going ahead and doing it now with their own money, or trying to figure out a way to justify it economically, delays are occurring all around the country because of the forestry incentives program. What's your reaction to that, Glen? Do you have any?

Mr. JONES. I have a strong reaction. I think that's a false impression, at least so far as it applies to Mississippi. Remember, Mississippi is one of the few States that also has a forest resource development program whereby we fund, as a State, some reforestation on private forest lands. We do not expect the Federal Government to do it all, but the funds are very—FIP funds are very important for Mississippi, and we would like to get more money for that program here in Mississippi simply because we have so many acres that are targeted for reforestation. Now you can do that either by increasing your appropriation or by shifting your money so that it is directed toward the acres which are the best possible targets for reforestation.

Senator COCHRAN. Targeting within the State?

Mr. JONES. Or within the country. For instance, there probably is no need for sending as much FIP money to Washington State where most of the land is owned by the Federal Government, and if they'd direct that toward the areas of the country where there is a strong or a high number of private nonindustrial forest landowners, we think this would be the South, naturally.

Another problem we've had with FIP is that our planting season apparently coincides with the time when the national Government is in the throes of making some serious budget adjustments, and we have had, I forget the—rescinded. We've had those funds rescinded, at least in several years during the time that included our planting season. They were later restored, but they were restored in April or May and that's too late to plant pine trees or hardwood trees or any other kind of tree in Mississippi. So the action, this rescission, has adversely affected the number of acres that we could have planted in those years here in Mississippi. We strongly support FIP and we strongly support our own State program, both of which we think are very good for the private, nonindustrial landowner.

Mr. TISSUE. May I add something to that?

Senator COCHRAN. Sure.

Mr. **Tissue**. Glen points out the times money comes available. You have to get the land ready to plant, and so many times the money becomes available and it's too late to get the site preparation treatment done in time for the planting and you're always behind and this is typical with the Federal program. And you know that Mississippi in the Appalachian area of the 20 counties does get some Appalachian funds. Appalachia is slow being approved and so as an example this year, I guess it's in July or August, we had a $400,000 grant. Well, we applied for that grant way early. This is 1983 money, but now we operate on the basis we're going to use that money in 1 year's time, but it's too late to get the site preparations done for the planting season, so we'll be asking for an extension of that money into the next fiscal year because we'll get the money obligated, we'll get the money under contract, but we still won't be able to complete the project in the 12-month period that we set up the grant application for. These are problems. Always have to extend over because we didn't get it early enough and these programs like that, that Appalachian fund, which is under my charge. I want things wrapped up in a year's time and move on to the next year. I don't like to have carryover, carryover, carryover, trying to get something accomplished. I support you on that, Glen, what you said.

Senator **Cochran**. Well, I again want to express our appreciation for your being here and starting our hearing in this fine fashion. Thank you very much for your cooperation. We'll now have our next panel come forward, if we can, and then after the conclusion of this panel's presentation, we will take a short break before we have our two final panels. This panel includes Richard Allen, our former State forester. Dick, we appreciate your being here. These are all forest landowners. Dr. Terry Ozier from Brandon, Chester Thigpen of Montrose, and E. J. Dennis of Ovett. If you will all come around to the witness table. It is a natural tendency for one of these hearings to take longer than anyone ever planned. We hope that oral presentations to the committee can be concluded within 5 or 10 minutes at the most to give us a chance to have a fuller discussion of the statements. Written statements that are available will be included in the record in their entirety, and so any summary comments that you have in connection with our review of forestry problems and issues would certainly be welcomed and appreciated. We will start with Dick Allen. Dick, welcome and thank you very much for being here.

Mr. **Allen**. Thank you, Senator. Let's see if I can get this thing working. I'm going to deviate from my written statement a little bit, if I may, by turning it in, sir.[1]

Senator **Cochran**. Thank you very much.

STATEMENT OF RICHARD C. ALLEN, FOREST CONSULTANT, AND MEMBER, MISSISSIPPI FORESTRY COMMISSION

Mr. **Allen**. I think I changed my mind a little bit. There's been a lot of good information presented here this morning and I think I'll nutshell that real quick and go back on some 45 years of history in Mississippi forestry and see if I can set the stage for these tree farmers. I happen to be a tree farmer, certified tree farmer, in Mississippi, a registered forester. I 'm an ex-State forester and an ex-Extension forester, an ex-Service forester and an ex-industrial forester. I look back and it's practically all ex, but it's been a lot of fun. Now about Mississippi. I think that Mississippi is highly representative of the South. So when you're looking at the statistics that we use here, percentagewise, you're looking at the South. An example of that is that you've heard this morning that about 54 percent of our total land area is in commercial forest. That's true for the total Southland. You have heard that about 75 percent of this 54 percent of commercial forest land is owned by about 100,000 nonindustrial private owners and that percentage holds true for the entire Southland. You have not heard too much about the need for increased productivity of the lands that we have. I'm going to discuss that a little bit, and that's pretty generally the same throughout—similar—to the other Southern States. I think that one of the questions you asked me to address was our potential to grow enough timber for future demand. Biologically, Mississippi's average forest acre has the capability of growing more timber than any of the other States, so we are a little ahead of the other Southern States in that respect. Not a great deal in two or three others, but somewhat greater than a lot of the Southern States. Now that sets us about where we are southwide and I think that if we look at it with that perspective that we'll have to say that any way you handle 54 percent of an area's land area is going to determine whether that area is going to be economically well off or economically bad off. So I think that we better address, since the 75 percent of it's owned by these nonindustrial owners--that's the key to the whole situation—how they handle these lands that they have under their control.

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[1] See p. 98 for the prepared statement of Mr. Allen.

Now let's get a couple of facts in here if we can. Back in the late 1930's and the 1940's and the 1950's, there was sort of a revival of forestry in the State of Mississippi and in the South. That vast cutover area that you're sitting in here, as a boy, I drove through this area when you could look through the smokescreen from the forest fires, and all you saw was just stumps, very little growing timber. And during that time, this State set up wildfire protection, it set up nurseries, it set up planting, it set up selective harvesting and management. And we came into the 1960's when the forest survey of 1966 was made. We were growing 125 percent more softwood timber in the State than we were cutting. Industry looked down here and said "look at that State," and they moved in. Now from 1966 to 1976, we increased our cut in this State 96 percent. We were very prosperous, going gung ho for prosperity, but at the same time we failed to increase the productivity of the lands—and we dropped from 125 percent of growth overcut of 1966 survey to a 13-percent growth overcut in that particular period. The State of Georgia, which is set up in the South as being one of the highly progressive productive States in forestry, has been inducing industry to come in there for years and years and they just finished their last survey just a few months ago and they're cutting 93 percent of their growth at this time. It's unheard of. It seems that every Southern State, as the 10-year period for the forest survey comes up, we find that increasingly we're depleting some forest land and not reproducing it.

Now having said that, let's see who really handles the reforestation in the State and I have a statistic on that which is in my paper and

I'd like to read that. It will only take a second because the old ex might misquote that. Industry and Government reforest and practice good management on their 25 percent of our State's forests. For an example, in 1979, I went back and got the reforestation figures, and Government who owned 10 percent of the total commercial forest land of this State, reforested 13 percent of that year's reforestation effort. Industry, with just 15 percent of the land, did 61 percent of the total effort on 15 percent of the land. And we nonindustrial private owners, with 75 percent of the ownership, only reforested 26 percent of the effort. So that shows you where the effort has been going.

I think that you can say that the Government and industry have done a good job of forestry on their lands. The effort has got to be on these nonindustrial lands. Now I have said in the past and I'll say it again—that you've heard a lot about export here. In your 1980 reassessment of the resource, I believe that Congress said that that plan calls for 36 percent domestic increase in production nationwide. And about 60 or 70 percent of that's got to come from down South. The export thing to me is a highly—it's a motivating thing because we keep saying, "well, what if we grow too much timber domestically." Mississippi has a waterway coming up on the east, it has one on the south and it has one on the west. We're going to be surrounded with waterways for export and we already have the good roads and the good transportation into the northern domestic market. We are ideally set to take advantage of an opportunity for that year 2010 market that sure is going to be here which is, you might say, a need for doubling of our effort down here. We do have the biological potential, if you sit down and study the soil maps of the State of Mississippi, we can more than double what we're doing now in growth so we're OK biologically.

We're just philosophically or economically or some way not set to get this thing going because here are the roadblocks that came up in that period when we increased our cut 96 percent, dropped our growth down to 13 percent overcut. The first thing was that each of the 10 years from 1966 to 1976, we lost 120,000 acres a year of prime pine land in this State. That's per year. That's 1 million acres in 10 years, more than 1 million acres, and it's all on the nonindustrial ownership. We dropped it from pine to brush, hardwood brush, which is not worth a penny on pine land. When you add that to about 2 million to 3 million acres of backlog that had accumulated over the last 20 years, you're sitting with 4 million acres out of only 12 million owned by these nonindustrial owners that's doing nothing for the State of Mississippi, doing nothing for the region, doing nothing for the Nation. The potential is there, the effort is just not there. Now those are the roadblocks that have come up. What is the answer? In my mind, the answer—the doing it is simple, it's just plant more trees fast after harvest. Get it reforested fast. Once those trees are planted, keep down insect and wildfire damage, selectively harvest them to a harvest at 30 years and start over again. The way to do it, we have the answers to that. We foresters know how to do that, but what are some of the roadblocks probably that are stumbling in the way of getting that done by these nonindustrial owners? I think No. 1 is what I call the vacillating and yo-yo attitude of the Congress, and I don't mean that personally. I mean that we are short range in our entire outlook on forestry when we are dealing with a long-range 30-year investment. Examples of that. The timber market fluctuates as the housing market fluctuates. We need a stable governmental policy on housing in this country instead of just using it for heating up the economy or cooling off the economy which we've done from my experience of 50 years. That's No. 1.

No. 2, hurriedly, on inheritance tax, 74 percent of the total commercial forest land owned by nonindustrial owners in these United States are in blocks of over 100 acres which is a sizable acreage of land. Inheritance taxes, and in my history, I could take time and repeat for you many instances where I've helped owners liquidate. The heirs liquidate an estate prematurely before that timber was even beginning to get ripe because they had to pay inheritance taxes. We must have a national policy on inheritance taxes that will keep, through continuity, these hundred acre plus—74 percent of the ownerships in them—until such times that they can be harvested economically and for the benefit of this Nation, not prematurely harvested. In my mind, if I had to put an answer to that, and I put it in my statement, I think that in 1985—Congress has done well in lowering the inheritance tax—that is the upping of the limit and getting the rate down. But I think that rate of some, 55 to 65 percent that's set for 1985—the rate has got to come down to about 20 percent to make it profitable for this Nation to continue growing crops of timber to maturity and not liquidating them ahead of time. Well, that's one thing. That's inheritance tax.

Capital gains on this long-range investment is a dire necessity. And every time that I—every year, it seems like, I pick up the paper, somebody in Congress advocates cutting out capital gains and do you know my telephone starts ringing right off the reel: "I got to sell that timber because Congress is fixing to take capital gains off, I can't afford to take it on to maturity." We have got to have a continuity of policy in the Federal Government rather than just things that pop up over night. FIP is the same way. FIP is just peanuts. That $12 million a year is absolute peanuts, but the side effects of FIP, other than it has been proven that it's a good investment for the Government because they're going to get their money back in taxes, the side effects are so great that as State forester I came head on with them. You develop a bunch of vendors, people who can plant trees, do site preparation through knowing that there's going to be some work ahead, but how do they know? Because every year they make an investment in equipment and they're going to pay for it over a 5-year period. We come up with a zip appropriation to begin with and then you and some others up there get it back up to $10 or $12 million. It's not that we need a lot more money. This is good seed money. It does a lot of good things, but we need a continuity of policy on that. We need it not just flipped around from year-to-year, but we need it continually.

I think that the small owners need a lot of training in economics and I think that service foresters, sometimes service foresters, their use is misjudged by some foresters. To me, a service forester is a public forester who makes a lot of contacts one-on-one on the ground before timber is harvested and explains the economics of different alternatives to the owner who in turn then can get a consultant forester to carry through on the practices that need to be done, but that link between the landowner and the consultant by a service forester who's contacting many, many landowners at one time, I think is a vital necessity.

Hurriedly, we have in Mississippi, and I think in all the States, and don't think I'm being picky, we have four and five agencies in every county working with farmers, Federal agencies. I have farmers come to me, even now, and how long has this been going on, 40 years, 50 years? They still want to know which office to go to get certain help. They're confused. Even the farmers are confused about these people. We have some counties where the effort—where the total land base is 75 to 90 percent timber—and it's high, nonindustrial ownership in Mississippi, where we have soil conservation and their charter is soil erosion, prevention of soil erosion, and those trees are stopping the soil erosion in that county. I think that that man should be a forester instead of an animal husbandry man. I think the effort of Federal agencies, in other words, administratively, should be combined in the counties and I don't know how you could do that, but they need to be combined administratively and cut out a lot of the money that's being spent duplicating and let that get down to the ground where it will do us some good. Then second, the charter of Federal agencies and State agencies should be pointed toward a county need. If a county is 75 percent in soybeans, put a soybeans specialist in there for all these agencies. If it's timber, put a timber man in there, so on like that, put a forester in there. I think that is probably of prime necessity.

Now what's all this going to take? It's going to take an effort by all of us because when we look at the public, I think that you look on your goal here is what should the Federal Government do, which is the people, in helping a tree farmer who has a chance to make money out there and helping industry that has a chance to make a lot of money processing it, why in thunderation should you be interested in that representing the public? The public has more at stake in this thing than the tree farmer has or the industry. I think if you study the ghetto in New York City, who's probably never seen a tree except across the street in a park, has just as much interest in a Mississippi tree farm as the tree farmer down here does because he's the consumer of the products and that price is going to fluctuate considerably depending on the supply. Also, I would not like to see us come up in this Nation with a shortage of timber in the year 2010 that we've come up and made such a mess out of energy because we didn't look ahead far enough, we were short range in it. I think we've got to take a long-range look. But what it's going to take is an infusion of a lot of front-end capital. The public, through the Federal Government and State agencies, the tree farmer, the landowner, and the industry, all of us together, are in this thing. The opportunities are there for all three of us. We each have responsibilities to share and if each of us will get on the ball with it, I think we can solve it. The answer, as I said, is simple. It's plant more trees, get the land growing and manage it to harvest. But then from the public standpoint, infuse whatever it takes to get the educational effort over and to certainly give some tax incentives that are continuous; not fluctuating from year-to-year, and I think we can whip the thing. Thank you very much.

Senator Cochran. Thank you very much, Mr. Allen, for that excellent presentation. I appreciate your being here and adding to the hearing as you have. Next we'll hear from Dr. Terry Ozier of Brandon.

STATEMENT OF DR. TERRY OZIER, BRANDON, MISS.

Mr. OZIER. Good morning, Mr. Chairman and others. I'm Terry Ozier from Brandon, Miss. I'm a tree farmer. I'm pleased to be here. To conserve time, I will speak from a prepared paper.

When considering the private landowner as a wood producer, it is helpful to have some understanding of the characteristics they possess. In Mississippi, there is estimated to be, as already has been mentioned, 130,000 nonindustrial forest landowners. The largest segment of this group, totaling around 120,000 people, own between 50 and 500 acres. It is surprising, however, to learn over 60,000 of these landowners own less than 50 acres. It can readily be noted the opportunities for commercial timber production on these small tracts is limited. Many, if not most of these ownerships, are not in a single block, but are split up by fields, pastures, roads, and so forth, which create management and harvesting problems. A large number of these tracts actually consist of narrow strips of woodland along stream bottoms which is not suitable for cultivation, but are part of a farming operation. The average age of the owner is around 55 years, and the occupation of ownerships can be classified in seven distinct classes. Factory workers or persons living in rural areas and maintaining an occupation away from home make up 32 percent; retirees are the second largest group consisting of 23 percent; farmers, once the largest segment of ownership, now make up only 16 percent; businessmen 11 percent; housewives 9; professionals 5, and the remainder of 3 percent are not identified as any one group.

There are believed to be five reasons why these Mississippians own timberland. It is estimated 52 percent own woodland primarily for timber production, the remaining 48 percent own woodland for one or more other reasons, as, for example, livestock grazing, residence, recreation, clearing for agriculture, and other reasons of less importance.

With timber production the primary goal of only slightly more than half of the ownerships, it would be suspected that timber management intensity would be low on most of the others.

Now the history of rural land use in Mississippi since World War II has some interesting happenings involving forest land owned by the nonindustrial landowners. During the late 1940's and 1950's, substantial areas of marginal agriculture land was abandoned for agriculture purposes and became naturally seeded in pine. In addition, during the soil bank program, which ran from 1955 to 1962, many landowners removed acreage from agriculture purposes and planted them in pine plantations.

The trend for converting agriculture land into timberland began to decline during the decade of 1967 to 1977, due mostly to acreage being cleared for soybean planting and other agriculture purposes.

During the decade between 1967 and 1977, the markets for softwoods began to expand, resulting in considerable marketing of softwoods throughout the State, particularly in the southern and central regions. During this period, it is thought approximately 38,000 or more acres were removed annually from commercial forests, a loss of 20.000 acres in commercial forests continued to occur annually from forest production. And over 100,000 acres of pine timber type has been converted to low-quantity hardwood each year for the past 10 years on these nonindustrial landownerships, by not regenerating these acres, to pine following harvest.

Heavy harvesting, without regenerating back to pine, has caused current growth rates on these private ownerships to be reduced to perhaps 50 percent of potential. Since softwood species represent the greatest value in commercial forest acreage under most conditions, this represents considerable economic loss in timber volume potential. In 1976, it was reported softwood sawtimber growth in central and south Mississippi barely equaled removals.

A recent report survey, in fact one that's just been completed reported by Royer and Kaiser, of 12 Southern States, which include Mississippi, are so close in my observations of landowner's philosophy regarding forest land that I wish to report on excerpts from the survey. The survey reports reasons influencing decisions for these nonprofessional landowners not to reforest harvested timberland during the period from 1971 to 1981. The primary reasons for not reforesting was a belief that pine would come back naturally. Four of five acres not managed for pine were owned by individuals believing this to be true on their land. Other reasons given were the high costs of reforestation, the long growing period before any monetary returns could be realized, competing demand for harvesting revenues, perceptions of low returns on the investment and too much redtape in obtaining technical or cost sharing assistance.

The same survey gave interesting reasons why some landowners chose to reforest following harvest. The primary motivation among landowners who had reforested was a feeling of obligation to keep their land productive. To a slightly less degree, anticipated financial returns prompted landowner action. Many acres were harvested and reforested on the advice of professional foresters. Cost sharing was reported to be a modest incentive, generally, though it was high among owners who were reforesting clear cuts. Tax credits and tax deductions were important to many owners. The authors also noted active reforestation was possibly associated with large holdings, and above-average education and income. Age was also noted to be a factor as older owners were less likely to have reforested their harvested acres.

The survey also disclosed, although the economy for forestry was steadily improved in recent years, pine management, particularly intensive management, is not widely recognized as being needed, nor in the personal interest of the owners of harvested acres. It is suggested the need to inform landowners about silviculture choices, especially owners who have large acreage of harvested land that they think will restock naturally with pine. Another finding was where professional foresters advised landowners, pine reforestation increased significantly. A final suggestion was the need to develop investment mechanisms that operate in the short-term interest of the landowners.

Forest industry development has proceeded at a rapid pace in recent years, spurred to a great extent by gains in the softwood inventory. It is significant this increase in pine volume has moderated since 1967, and it is likely that a continuation of recent trends can sustain future growth in forest-based industries. In order to provide an adequate timber supply for the near future, management practices should be intensified at this time. There is reported to be 3 million acres, or more, of oak-pine forest on sites more suitable for pine than hardwood; to release these acres that have a suitable pine seed source or releasing acreage with enough pine basal area to carry it to the final harvest would greatly aid in supplying the wood industry needed softwood in the immediate future.

The forestry incentive program, commonly known as FIP, provides for cost sharing between these landowners and the Federal Government for tree planting and timber stand management expenditures. I would like to suggest five ways this program might be improved.

First, by seeking more equitable distribution of funding among Southern States; Mississippi's share of these funds during the current year, for example, amounts to about 75 percent of funds received by Alabama.

Two, seek additional funding to help release the 3 million odd acres of oak-pine so that these holdings of these private landowners can contribute to the badly needed of wood industries before the turn of the century. I think this is a very, very important must.

Three, seek funding under this program for training and equipping crews of the Mississippi Forestry Commission designated for prescribed burning in pine stands. I don't know really how we're going to continue the type of pine culture we're talking about today without some form of prescribed burning.

Four, often inclement weather retards site preparation in tree planting. Provisions should be made where cost-sharing contracts could be extended beyond the 12 to 18 months now commonly adhered to without loss of funding. I have noted sites poorly prepared and pine seedlings planted out of season so that the practice could be funded under the time schedule. I believe this has already been mentioned earlier.

Five, streamline administrative procedures involving the program so as to make a more efficient delivery to the landowners.

Now recently the Society of American Foresters has taken a position directed toward improving outputs from nonindustrial forests. Of those positions endorsed by the society, there is one I am particularly impressed with. It was a program I have hoped to see implemented for some time in forestry schools. I quote from the August issue, 1983, of the Journal of Forestry. "The Society supports the development of programs and curricula to encourage and train students for landowner assistance work." This is a decided step in the right direction toward basically educating consultants while in college rather than having to depend on outside sources for consulting education following graduation to become familiar with the practice of forestry best suited for specific landowner needs. This should encourage young graduate foresters to enter consultant fields at an early age. The private forest consultant can contribute immensely toward reforestation and management of nonindustrial forest lands. It is hoped forestry schools will soon give consideration to this recommendation from the society.

And in closing, I wish to suggest the development of permanent demonstration forests to be located in the southern, central and northern sections of the State. This is badly needed to demonstrate a managed forest throughout all ages of growth and development. The nonindustrial private landowner could get a perception of forestry that is now very difficult to obtain, and it will greatly broaden the scope for encouraging the practice of managed forests. I thank you very much.

Senator COCHRAN. Thank you very much, Dr. Ozier, for those fine remarks and suggestions. Next we'll hear from Chester Thigpen of Montrose.

STATEMENT OF CHESTER A. THIGPEN, MONTROSE, MISS.

Mr. THIGPEN. I want to thank you, Senator Thad Cochran, for inviting me to this important meeting. My name is Chester A. Thigpen, a private landowner part tree farmer, and I'm going to talk a little bit about the importance of forestry to Mississippi.

As a private landowner, I would like to testify to the economic importance of forestry to timberland owners and to the economy of Mississippi.

Forestry is a multi-million-dollar industry in Mississippi. Our forest contributes over 40 cents out of every dollar in the Mississippi economy.

I realize that forestry is a long-term investment, but from personal experience, I know it is a good investment.

A person may say, well at your age, how do I figure it's a good investment? But on an average site with proper management, it is possible to obtain $20 to $30 per acre per year return on a 25-year-old-pulpwood stand. If the landowner grows the stand on to sawtimber size 45 years old, it is not uncommon for the stand to grow $100 per acre per year.

I know of few other investments in the agriculture field where a landowner can make a profit of $25 per acre per year, especially $100 per acre per year.

Our major problem in Mississippi is as follows: Approximately 55 percent of the total land areas of Mississippi is in commercial forest land. Approximately 75 percent of this land is owned by some 130,000 small private landowners.

Approximately 2 million acres of this privatey owned land is unproductive growing broom sedge and briars. The other 10 million acres is producing less than half it's capable of producing. The main problem here is that the small private landowner does not have the money to invest say $100 to $155 per acre to get the land in full timber production.

The Federal FIP and ACP programs have been very helpful to the private landowner, and had it not been for them, I wouldn't have the type of tree farm that I have today which I'm proud of now and I paid more back in taxes than I got from them when they were assisting me. However, since the cost-share rate has been cut back to 50 percent, many poor small landowners still cannot afford the out-of-pocket expense of $50 to $80 per acre matching money.

I feel that it is necessary for the cost-share rate on FIP and ACP practices to be raised back to 75 or 85 percent cost-share rates, where the income of that landowner didn't have the sufficient funds to do it, I believe it would pay us to go 100 percent on it. Research has shown that Government can justify paying even 100 percent on the cost of establishing timber on private land due to its impact on our economy.

Most landowners receive about $10 per cord for their wood on the stump, that's pulpwood. However, the cord of pulpwood is valued at several hundred dollars when it is manufactured into useful products.

In summary, I feel that the solution to most of Mississippi's economic problem lies in the proper management and production of the 12 million acres of timberland owned by private landowners.

Mississippi forestry ranks third in agriculture enterprises. Mississippi forestry ranked $467 million in 1981 and, you know, all of Mississippi don't fit it, but the portion that does fit it, this part of the State, I think that's a lot of money in these hill counties where it's about the only way you could recognize that soil has eroded so fast. I think we need to encourage the landowners on a lot of this land to discontinue this row crop farming and put it into such as forestry and this kind of price ought to be encouraging to us.

Now in Jasper County in 1981, the agriculture enterprise was $12,993,753. That's a lot of money generated even in Jasper County—as small a county as it is. So I think if we can get this part of the State back into production, it would be very helpful to the economy.

For an example a landowner of 160 acres of land that have a potential of a productive capability of what I have mentioned, he or she don't have to pay but just a small amount of taxes, probably no income tax. If the Government would assist him 75 to 85 percent of the cost to utilize this land, I believe it would be a real good investment for the Government and we could ride around the area and soon see a great difference. I believe a tree farmer can borrow the money and buy some land that's suitable for the tree farming and start utilizing it along with wildlife. Now a lot of times a person can do that and he could set up a good wildlife program on it, and I have heard them talking about, they could get as much as $15 to $20 an acre in a hunting club per year for lease on that land. So I'm thinking that would just about pay the interest on the money you borrow if it didn't help pay on the notes. I think that's another way we could encourage a lot of them that's not trying to make an effort to utilize their land where they could be producing something. Most of all, the most valuable resource that we have in Mississippi, I think, is our minds. We get our minds to want to go to producing something, we'd have a much better Mississippi, much less crime, you know, going on and I think that is one thing we all ought to get concerned about. Get Mississippi's mind on something to producing something instead of studying ways to get something. I always wonder what could I do to help the economy instead of what could I get out of the economy, and the return I have got from the way I have practiced has been very helpful to me.

We've got another problem here in Mississippi that's a bad problem, too, I'd like to talk about. Mr. Allen didn't talk about it, too, I didn't hear him mention it and that's this kudzu problem. Any way that we could get the funding for some researchers to do some researching to do something to do away with this kudzu. I wouldn't mind my taxes being raised to help support that problem.

So I hope this information would be of some help to us for the economy, and I want to thank you very much for inviting me to this meeting and I really have enjoyed what I've heard and it's hard for me to say something that I haven't heard, but I just had to say something.

Senator **Cochran**. Thank you, Mr. Thigpen, for adding so much to the hearing. We appreciate your participating in this panel very much. Now we'll hear from E. J. Dennis of Ovett.

STATEMENT OF E. J. DENNIS, OVETT, MISS.

Mr. DENNIS. My operation is about 340 acres in pine timber and cattle in the southeastern corner of Jones County. I feel we as private landowners have adequate information and planning assistance available without cost to us. Naming a few: Soil Conservation Service in each county, county agents office, or Extension Service, Mississippi Forestry Commission through its local offices, many of the timber companies, and many forestry consultants.

To supply the growing demand for timber, the private landowner will need to practice better forestry and plant his idle acres and land not suitable for row crops in timber, though I feel well-managed pine timber acreage year in and year out will pay him better than row crops and will hold the soil better.

In 1937–38, I sold pine pulpwood stumpage at about 25 cents a cord. In 1983, it is bringing $14 to $18 a cord. In 1942, stumpage for pine timber was $35 to $40. Today it is $220 or better. You can see from this the growing demand we are having for timber. The prices for row crops or livestock have not made comparable advances. These prices that I mentioned are in Jones County, I understand the northern counties probably are not getting those prices.

The timber industry is old in Mississippi, with many manufacturing plants and more are moving in. It is now a leader in the State in the number of people employed, as most of this crop is processed in the State. I feel with more planting and better care of the present crops, we can double our production of timber in Mississippi, with a great boost to our economy.

In this endeavor, we need more help from the news media; though they are helping, we just need more, in encouraging the private landowners to seek the help that is available, and that growing timber is profitable and good land use. We too have a responsibility to furnish the media information and news releases.

Recently, I went to the ASCS office to apply for help in planting about 60 acres. I was told that the money would not be available until January 1, 1984, and to come in after January 1 to make application. If I expected help on site preparation, seedlings, and planting, not to do any of the work until I received approval. In this part of Mississippi, I feel the trees should be planted in December or January for best results. The private landowners need to be able to apply not later than November 1, otherwise we cannot do the planting and site preparation in time to plant. This present setup is too late.

Today, the cost to plant pine seedlings, including light site preparation is running $100 an acre; with heavy site preparation, costs would run about $115 an acre. Federal assistance has been reduced from 75 percent of established cost to 50 percent. Of course, some tax incentives have come along that can be taken over a 7-year period. The reduction from 75 to 50 percent has hurt. Since most private landowners are middle age or older, they hesitate to put out the capital needed, realizing they may not live to harvest the crop.

In summary, advice or help is available for the asking. Second, we need more planting and better forestry practices to supply the future demand. Third, more media help. Fourth, don't be so late with the ASC program. Fifth, we need to go back to 75 percent assistance.

Thank you, Senator Cochran, for holding this meeting here at this time. As we have just a few miles south of us one of the largest timber using mills opening up, probably with buying in the next 6 or 8 months, we need a boost or we need the help.

Senator COCHRAN. Thank you very much, Mr. Dennis, for your presentation and those practical suggestions on how we can improve the Government-landowner partnership in helping to improve our utilization of forestry resources. I think this has been an excellent panel that has come up with a lot of good practical suggestions on what can be done to improve Government programs and what can be done to improve private landowner management of forestry resources. I'm hoping that when we get this hearing completed, I will have an opportunity personally to take excerpts from the transcript of this hearing and communicate with officials in Washington who are in charge of administering these programs, and who are in charge of developing budget allocation proposals, to see if we can't translate into practice some of the suggestions that have been made here this morning, because I think we've heard some excellent suggestions. I'm not going to attempt to rehash them all at this time. I do think we ought to take seriously the suggestions on the forestry incentives program continuation. Dick Allen pointed out that there has been an effort made for the last 2 years to really do away with the program, to combine it in an overall ACP program so that it would in effect disappear, I'm afraid. But we have been able, with the support of other members of the appropriate committees in Congress, to continue that program in an identifiable way, even though the funding level has been less than we had hoped that we could get approved by the Congress and signed by the President.

Let me say this about the capital gains tax scare. We have received a lot of mail on this subject and, frankly, while there are one or two or maybe more Members of Congress who will suggest from time to time that the capital gains treatment of timber sales ought to be changed, that does not reflect the majority view and there is no bill that has been approved or reported out by either tax writing committee in the House or Senate recommending that that change be made. The administration is not recommending that that change be made. So my hope is that we won't get too alarmed just because some nut suggests that this is something that ought to be done. I can't imagine that Congress would approve it. Nobody in any leadership position in either House is on board advocating such a change. I'm certainly never going to vote for it, and I don't think many Members of Congress would support it either.

The estate tax changes that are identified as in need of attention, I think, should be addressed however. I was very encouraged 2 years ago. As a part of the economic recovery program, we did see some major revisions in estate tax laws made. As a matter of fact, I can remember when I came to Congress 11 years ago, there were suggestions to decrease estate taxes, to make changes in capital gains rates and the number of Members of Congress agreeing to support such changes was minuscule. There was just no hope of making those changes. But 2 years ago, the changes were made in estate taxes. Very dramatic changes which I'm confident are going to continue to pay dividends in the future in terms of keeping land areas within a family by not having to liquidate farms to pay inheritance taxes and such as that. But if we can make still further changes, then I think they should be explored.

All in all, I think we've learned a lot from this panel of witnesses and I don't have any specific questions to ask. We're running a little bit behind. I think now we'll take a break in our hearing and then resume with our third panel in about 15 minutes. Thank you very much for your participation.

[Recess.]

Senator COCHRAN. The subcommittee will come back to order and we will reconvene the hearing with our third panel. For the third panel we'll have forestry industry professionals including Bynum Meeks, who is a State forester with St. Regis Corp. in Monticello; John Guthrie, a consultant forester from Wiggins; Bob Daniels who is the Extension forester, Mississippi State University. This panel has been asked to present testimony to the committee on the same issue as the landowners were asked to address, but from a different perspective, that of the professional forester. We appreciate so much each of you being here this morning to help us with the hearing. I've mentioned to earlier witnesses that for some reason we always are more optimistic on time than the realities justify. We had hoped to be able to conclude the hearings around noon today, obviously we're not going to be able to do that, but I hope that we will be able to try to keep our oral presentations to about 5 or 10 minutes, and that will give us a chance to have some discussion of the issues that are raised. Let's begin with Bynum Meeks. Thanks for being here. We appreciate your helping us.

STATEMENT OF BYNUM MEEKS, ST. REGIS CORP., MONTICELLO, MISS.

Mr. MEEKS. Thank you, Senator. I appreciate being invited. Your invitation to make this statement indicated that you were specifically interested in three items. No. 1, the productive capability of our forest land to meet present and future demands. No. 2, needs of the nonindustrial private landowners to grow more trees and factors that affect decisions on timber management. And No. 3, to assess the role of public and private assistance for encouraging forest production in terms of what now exists and what needs to be available.

Before addressing these three items, I'd like to express my opinion as to the importance of the nonindustrial private landowner's role to the forest industry and to the State's present and future economy.

This landowner controls three-fourths of the land area in Mississippi which is capable of producing raw material for our forest industry.

More than 25 percent of the State's industrial work force is employed in the forestry industry. My employer, the St. Regis Corp. operates a Kraft linerboard mill near Monticello. This mill normally uses approximately 900,000 cords of raw material every year. The St. Regis forest lands supply only 5 percent of this raw material. Tree farming by private landowners is obviously very important to St. Regis, the forest products industry and the public at large.

In commenting on these following items, I may generate more questions than I answer. I don't have all the answers and don't believe anyone else does. Hopefully, through discussions such as this, ideas will be stimulated which will get us to where we need to be.

First, the productive capability of our forest lands to meet present and future demands. The capability of the forest lands of Mississippi is equal to or probably exceeds capabilities of all other States. We have excellent forest lands. These lands are capable to meet present demands and any reasonable future demands. However, when you look at the present condition of these lands, you can forget about supplying future demands and go to worrying about maintaining present demands. Generally, company lands and public lands are maintained in an adequate condition. But, the majority of the other 75 percent owned by private nonindustrial landowners is not. Less than half of the forest acres harvested on these lands receive any attention toward establishing the next crop of trees. Through the efforts of our forest productivity committees or county tree farm committees, in 66 of the counties, over 115,000 acres of land on 1,300 ownerships were identified as needing reforestation measures. We estimate only 60,000 acres will get any attention. Now these ownerships were identified since October 1, 1982. That's just a year's effort, and we're sure there's some more out there. We cannot afford to accumulate thousands of acres, 50,000, 60,000, or 75,000, whatever number you want to put on it, nonproductive forest land and expect to stay in business.

There are other nonproductive lands and I don't have an idea as to how many are out there. We call them idle or abused acres. You've seen them every time you take a ride in the country. Basically, they are abandoned farmlands or those lands just occasionally used. In some cases, it's lands being row cropped or pastured that isn't capable of doing it. Some of these lands have been improperly tilled and have eroded to the point you can hardly walk over it.

Plant trees on the harvested forest lands that need it and the idle or abused lands in Mississippi. Our future will be some kind of bright.

Item No. 2, the need of the nonindustrial, private forest landowner to grow more trees and factors that affect decisions on timber management. As alluded to earlier, the forest industry's past, present, and future in Mississippi depends on available raw material from the private landowners' forest land. This is nothing less than a hard, cold fact.

As to the factors that affect decisions on their timber management, these are many. First, we need to look at what the objectives or expectations are of the owners. These could include full or partial income, retirement benefits, security for descendants, watershed protection for agricultural land, or just for hunting and fishing or other enjoyment. All of these objectives can be obtained in whole or in part with an adequately stocked commercial forest. Of course, this well-managed forest just doesn't happen. It takes knowing how and the ability to do it. Most private owners need help in both areas. They need help in planting, financing, and the execution of those plans.

Needless to say, there would be no incentive for him to continue in the tree farm business without adequate markets. As a whole, our State has adequate markets. Some areas are being studied for new markets. Hopefully, the availability of desired resource and a commitment to insure future resource are in place before the facilities are located.

Successful tree farming by the private landowner is not uncommon in our State. There are over 5,000 certified tree farms here. That's more than any State in the Nation. But, this is just a drop in the bucket when you consider that there are 130,000 nonindustrial, private landowners here.

The third item I want to discuss is, assess the role of public and private assistance for encouraging forest production in terms of what now exists and what needs to be available. Money has been made in the past, is being made now, and will be made in the future on timber. Forestry is good business. Really, this should be all the encouragement we need. But, is it? I don't think so. It takes a properly managed business to be successful. Our forest lands are divided up into thousands of ownerships. Some are successful managers, the vast majority are not. Help in making analysis and decision is available if the owner will seek it from consulting foresters, public agency foresters, and industrial foresters. Maybe we need more help than we have available, I don't know, but there is help available. To insure increased forest production needed in our State is going to require a one-on-one contact with the private owners. Contact through print, television, radio, meetings, et cetera, are good and inspire thinking. But I don't believe you can measure success without the personal encounter and observe the job being done.

Now many folk think about money when you mention public or private assistance. That's free money; grants. Let's talk about that. I know of two types here in Mississippi and they've already been mentioned earlier: The FIP program which is funded by the U.S. Congress. And the other is the forest resource development program. FRDP it's commonly called here, which is financed through forest industry's self-imposed increased severance tax which is earmarked specifically for increased forest production. Most of the private owners can't afford capital investments needed to reforest their lands. These programs will share the cost with them. I believe now the landowner's share is 50 percent. Are these programs adequately funded? I really don't know. But, I do believe that present funds would go a lot further if less intensive and less expensive alternatives are applied. Too many of our landowners try to duplicate the intensive practices used by the industry and the Federal Government. Most private landowners can't afford this. Sometimes I think maybe public nor private assistance should be expected to finance the Cadillac or the luxurious job because a lot of landowners do it on their own and they reapprove them and get it done for reasonable costs.

However, if increased funding is needed, I think it should come from the private sector; the landowner and the industry. Many industries offer management assistance at varying levels. This could be intensified into share crop arrangements. You furnish the land and we'll furnish the seed and fertilizer. This concept's nothing new for Mississippi, except it was handled or used in producing cotton and corn and different other kind of crops. Why can't we think about this in terms of tree farming? Those industries without assistance programs need to get involved. Somewhere along the line I've been told you can't expect to receive more than you put in. I think good investments in forestry will get you back a lot more than you put in.

Senator, there is one more item I'd like to mention that wasn't specifically asked of, and Dr. Ozier touched on this subject. I think it bears repeating and that's forestry training. Forestry education has been around since 1900. It's grown tremendously. We have an excellent school here in Mississippi. Young graduating foresters are well trained for the management of forests on large holdings as held by industry and public lands. That's less than a quarter of the land in Mississippi. This is good, but this is not where the challenge exists today or in the future. I propose that any school of forestry operating within a land-grant college or university be required to develop a curriculum and offer a major in the management of nonindustrial private forest lands. The practicing foresters of today are stumbling in this area. Although well intended, we often find ourselves pulling against one another. By training future foresters to work in this area, you will do more toward satisfying future timber needs than anything I can think of.

Thank you again for the opportunity to be here today.

Senator COCHRAN. Thank you, Bynum Meeks, for that excellent presentation; very provocative suggestions and observations. We will now hear from John Guthrie, consultant forester at Wiggins.

STATEMENT OF JOHN G. GUTHRIE, WIGGINS, MISS.

Mr. GUTHRIE. Thank you, Senator Cochran. I appreciate this invitation to be a member of this panel. My requests from the Senate committee were the same as Bynum Meeks and he has covered them well on forestry and needs for the future as to productivity, needs of nonindustrial owners, and the role of the public and private assistance. Of course, I'd like to say first that this nonindustrial private landowner has been referred to throughout and for many years as a problem, and most of the people who are talking about it being a problem, are people of Government or people from industry. I submit that the nonindustrial private landowner knows there's a problem, but he doesn't really realize it's him, and from his viewpoint, the problems are different in the fact that he's not really worried about supplying enough timber to say, run a mill and all that sort of thing, but the fact that he does own the property, enjoys owning it, wants to get an economic return; this desire will produce the benefits for industry and Government.

So, I think perhaps I could illustrate this problem by a happening of my youngest son. About 20 years ago, my wife and I looked out the window and he was running around the neighborhood playing, and the seat of his pants was completely gone, and he was having a real good time. He didn't know he had a problem, but my wife thought he did. So that in one sense of the word, the nonindustrial owner is similar in the fact that some of these problems he doesn't realize or relate to. Now, as far as productivity and capability of our forest lands, others steeped in research and others have put these facts forward. My own experience over 35 years, is the fact that we can grow here in Mississippi, from 1 to 3 cords per acre per year of wood or as this relates to lumber, board foot wise, from 300 to even as much as 1,000 feet per acre per year. Realistically, lands that we have managed over many years, 25 years or so, return a growth of 300 to 500 feet per acre per year; this is not unobtainable and it has been obtained. In dollars and cents, this checks out real good with what Mr. Thigpen had said before: "From $28 to $30 per acre per year to as much as $100 per acre per year."

Now in my opinion, the nonindustrial private forest landowner is furnishing a lot of the needs. The fact is, most industry representatives will tell you that their mills, or so on, are obtaining 70 to 90 percent of their supply from these nonindustrial forest landowners. So, in one sense of the word, he has been doing a good job. It's just the fact he could do so much better. It's been said that of our 12 million acres of nonindustrial timber lands in Mississippi, the facts that say if we were able to get these nonindustrial owners to grow even the lower figure of 300 board feet per acre per year, this would translate into a growth in Mississippi, a supply from nonindustrial owners, of 3.6 billion board feet per year, and I don't know what the present total consumption is, but I imagine it would exceed it. That would be the ideal. Somewhere short of that perfection is the possibility where it could be a whole lot more than it is now. So, this just illustrates the potential of the nonindustrial owner to supply the needs. As has been said, this would be reflected across the country, especially across the South, as Dick Allen said.

Now as far as the needs of the nonindustrial forest landowner, and he does have a different viewpoint, his economic needs and desires are different. He may have a strictly investment incentive, or I have heard of people who manage their lands, especially in the northeast, just so the leaves will look pretty in the fall. So then that's a little bit different viewpoint than what we think about normally. But, this nonindustrial owner will respond to economic incentives or incentives of all kinds. He'll respond maybe in a negative way to coercion, or he responds in some manner to grants, that type of thing, but I feel, and my experience and opinion is, that he'll respond to an economic incentive. I'd like to illustrate that when I first arrived in Wiggins, Miss., about 35 years ago, there were mills who had pulpwood dealers that were 300 miles away. That, in other words, they were acquiring their wood in a 300-mile radius by rail. Over a 25-year period, these mills now can get their wood by a truck haul. So to me, the landowners responded to a market and grew them the wood, and this has been proved over and over throughout the South, so this is also even true for sawmills, plywood logs, and so on. So then as we get into factors that affect the decision about the management on nonindustrial land, they are influenced by the individual's economic situation, the markets, which are very important, and we love the American free enterprise system and we think it works.

Then we get into things that the Government can do such as we've gone over the FIP program and those sort of things, I think, are good. I won't stop and talk about them, but I think in the realm of taxation, direct taxes, income taxes, capital gains, estate taxes, things I won't say specifically, but things that will enhance the timber grower and incentive him in this way so that the money won't necessarily have to go to Washington, he'll be motivated at home, he doesn't have to make a lot of applications, he doesn't have to do a lot of those things, he can look at his portfolio and get the job done. Another very important thing that affects his decision is the credit line available, so that I think this may be something that could be looked into through the current credit organizations. In this regard, I think the Federal land bank is doing a good job, production credit also. I remember 25 years ago, well almost 35 years ago, when I was first trying to buy a first piece of timber land cutover. It was against the law for a State bank or a national bank to loan money on unimproved land, and it wasn't until later years that the Federal land bank and others would come in and make a long-term loan on unimproved land.

Naturally, the interest rates that go up and down affect this, but over a long period of time, long investment, in some manner I think could be enhanced by a grant program or an aid program from that side, some sort of an interest reduction program, if anything, mainly if the credit line is available through these agencies that are already experienced in administering loans and to reputable people who will pay them back, then I think this will go a long way.

Another area that might be of special help; in our area we have suffered in the last 12 or 15 years, two giant hurricanes. The Hurricane Camille and Hurricane Frederick. We have planted trees on our own lands just ready to thin out to send the boys to college and Hurricane Camille blew them away and the Government said I had no loss, you know, because we had grown the trees. So, you know, it's hard to take that pill. But at any rate, we understand very well about the cost and basis and all these sort of things, but perhaps something on casualty losses could be structured so that there would be incentive to put those lands back into production and to somehow recover that long period of time that you've lost, and put the money back in. I don't know exactly how to go about it, but I think that's an area that would be very important. We thought that with Hurricane Frederick coming along and Mount St. Helens about the same time, there may be enough casualties around the country that would motivate Congress to do something about that. But now that it's over, we tend to forget it. Of course, I think, and as you've said, but we'll touch on it anyway, it is important that we keep capital gains. I think that you made a great step forward in this investment credit to deduct reforestation costs.

Then I would like to say maybe another great area that the Government could help would be in the matter of deregulation, not regulation. We're blessed with not too much regulation, but then on the other hand, there's always a trend to think well, you know, we could tell the people how to do it better if we could just make them do like we want to. I think that maybe the classic example about over regulation was in Europe in those middle ages to the point where the pilgrims came to America. I think that was probably a result of over regulation. Maybe the classic example of deregulation is when the people got to America that they didn't have those regulations and look what happened, the greatest period of development, as we know it, on organized civilization in the history of the world. So I think maybe that is a lesson that we can think about if regulation got out of hand.

Then there's a number of other refinements as far as the nonindustrial owner is concerned and I'll touch on just a couple in ending. That is, they may be criticized for not doing as much reforestation, but in one sense of the word, they may not do as much deforestation. In other words, using natural means, partial cuts instead of clear cutting and planting and that type of thing. So I think that is probably maybe one reason that those records may not be quite what we think they are.

Then I think we ought to touch on the fact that in my opinion it would be a mistake to sell those U.S. Forest Service lands. I think that the people—incidentally, we manage about, our company, John

Guthrie and Sons—I have three sons that are foresters—manage about 80,000 acres, and we represent about 35 different owners in about 12 southeast Mississippi counties, as well as others, and we look at this sort of thing. Say the Government lands came on the market, it would be just like too much timber on the market. That would destroy values. Also the fact that the program is sort of to consolidate lands which sounds good for management purposes. But on the other hand, I think we in the South are blessed better than any place in the world because the labor supply is situated around through the forest. In the southern forests, they don't have to have lumber camps and such things to get their labor there, they already live there. So maybe too much consolidation is not so good. It's not too bad like it is. So I think those programs should be looked at. Also, as you go from the national forest lands and company lands who are doing a good job, it's like the example or demonstrations some of them said we should put around to show people how to do the forest management practices on private nonindustrial ownerships. Forest management gets better as they get closer to national forest area and properties, or industrial forest properties; they do watch the example.

I believe that this will conclude what I have to say. I appreciate the privilege of filing a more detailed report which I'd like to submit when I get it up.

Senator COCHRAN. You certainly have that prerogative and I appreciate your being here and discussing your views with the committee. Your experience and your knowledge in this area is certainly important for us to consider and to have as a part of the record. We're going to hear now from Bob Daniels who's an Extension forester at Mississippi State University. Bob, welcome to the hearing. Thanks for being here.

Mr. DANIELS. It's a pleasure to be here, Senator. What I plan to do is read a bit from a prepared statement, at least in part, and then depart from that a bit and maybe I can be as brief as possible and get us through here by lunchtime.

Senator COCHRAN. Thank you.

STATEMENT OF ROBERT A. DANIELS, EXTENSION FORESTER, MISSISSIPPI COOPERATIVE EXTENSION SERVICE, MISSISSIPPI STATE UNIVERSITY

Mr. DANIELS. Little disagreement exists among foresters and others concerned with resource management about the capability of the South's forest lands to produce timber, especially pine timber. For more than 15 years, particularly in the last 10 years, forest industry has been investing heavily in the South.

As a way of background, consider these facts. First, during the 5 years between 1974 and 1979, each of 22 wood-based firms purchased over 20,000 acres of timberland. Twenty of these firms purchased southern timberlands. Second, during the 15 years between 1962 and 1977, forest industries increased their southern timberland holdings by some 2.3 million acres. That's an average of more than 150,000 acres per year.

Three, only two papermills were started in the United States last year, both were in the South. One is located at Columbus, Miss., the other is in Georgia. Four, this year alone four new wood-using facilities have been announced in Mississippi and Glen Jones listed these, but I'll go ahead again. Georgia-Pacific will build an oriented strandboard mill at Grenada, Miss. Louisiana-Pacific is building an oriented strandboard mill and a sawmill at Grenada, Miss. Crown Zellerbach is building a large sawmill in McComb, Miss., or just south of McComb, Miss., and International Paper Co. is installing a large pulpwood yard near Winona, Miss.

Five, the production value of forestry in Mississippi increased from $237 million in 1975 to some $406 million in 1982. Clearly, forest industry is relying on the South to supply its raw material demands for the future. What it boils down to is that industry is betting big bucks on the South. It's a big crapshoot and that's something that nonindustrial, private landowners need to know and many of them do not know. I will get back to that in a bit.

The productive capability of Mississippi's forest land is not much of an issue. Our soils and climate combine to give Mississippi and the South a comparative advantage for timber production. Instead, we must examine the condition of our forest lands and what public programs can do to improve the condition of the South's forest factories.

Forestry is by far the predominant land use in Mississippi and it's been brought out this morning. The 16.5 million acres of forest land in Mississippi are the productive base for an important and growing sector of the State's economy. Much of this productive capacity, however, 71 or 72 percent, as has been brought out this morning, is owned by some 133,000 private, nonindustrial owners who in many cases do not manage their forests.

Some 8 million forest acres in Mississippi are in need of some silvicultural treatment to make them more productive. Another 1 or 2 million acres have been harvested and have not been regenerated. Nearly 100,000 acres per year are being added to this "cutover" category. Currently, the average acre of Mississippi forestland is producing about 60 percent of its potential. We've heard that this morning also. If the Nation's projected wood demands are to be met, this privately owned forest production capacity must be fully utilized, and this is nothing new this morning.

Here's the question, then. The timber that these lands can produce will be in increasing demand. We've established that this morning. Producing forest products the Nation needs will benefit those who supply them. We know that. Why then are these lands unmanaged and why is there a regeneration problem not only in Mississippi, but also throughout the South? Studies have shown the reason to be a lack of knowledge, at least in part. And the study that I'll quote from is this one that's been mentioned by Dr. Ozier already this morning or alluded to. It's management practices and reforestation decisions for harvested southern pinelands. It's by Fesco and several others. It's a statistical reporting service report.

This study by that service that examined management practices and reforestation decisions on harvested southern pinelands; that is nonindustrial private landowner lands, showed that on 75 percent of the South's acres that were not actively reforested, the owner's feelings that his site would reforest itself were of high or moderate importance in the decision not to actively reforest to pine. This is just wrong in most cases. It's a misconception on their part. Also, about 20 percent of the owners of "cutover" forest land were unaware that cost-sharing programs are available.

Now that just flat got me. I can't believe anybody doesn't know. This is a 20-percent figure, and I think this should wake some foresters up, wake us all up, to the fact that these findings and others point to the urgent need for effective education of these nonindustrial private landowners. And what it's going to take is an effort by all agricultural agencies and that's been brought out here also. Not only that, also by individuals that are involved in timber production, like the tree farmers that we have had here this morning.

Basically, I think what we need to do is answer the question "why" to these people. Why should these lands be managed and what can you get out of it? Of course, we've also heard this morning the need for increased emphasis on the economics of forestry, and this is something that we've been doing and had an increased emphasis on in our program, at Extension. As Mr. Guthrie said, why mend your pants? We need to convince these folks that these are valuable production acres, and I think one way to do that is to emphasize the way that industry is counting on the South. Perhaps even the way that we phrased this problem, in the past, is a problem.

We've always said we as foresters are depending on you as nonindustrial private landowners to support the industry. Well that's true, but if you're sitting there with a 50- or 75-acre tree farm, what do you care about what industry needs? You want something, as Mr. Guthrie said and others have said, you want something that's going to benefit you. Well, we can turn that whole proposition around and say these folks are providing markets for you, this is an excellent opportunity for you to come out here, produce a product on your land that you can do better than anybody else in the country, probably the world, I can't stand on that for sure, but you can produce wood better than anyone else in the country, faster, of high quality. This is an opportunity for you to put these, in many cases marginal acres, into full production with an excellent product. A product that is fast becoming Mississippi's No. 1 agricultural product. So, what I think is, we have a good story to tell, a great story to tell, and I get excited about telling it. What we've done as foresters in the past, I think, too much of, is we've talked to ourselves. We've gotten into groups of other foresters and tree farmers who are interested in hearing what we're saying anyway and we've told them this. Now some of the things that we've told them, they've known before, they've already realized some things, but we've talked about a few new things. But what we need to do, and this is the posture that we've taken at Extension, is to institute some innovative and nontraditional types of programs to reach other groups that we've not reached in the past.

As a couple of examples, we've had a program or we've tried to target programs at women. We've heard someone say this morning that women were about 9 percent of all forest owners in this State. Well, those are outright owners. Those are women who don't have any husbands, they're classified as "housewives." There are a lot of other women who are sprinkled through that farmer's category and professional's category and factory worker's category that were mentioned as forest landowners. And an interesting point I might bring out is we had a session for State homemakers. It was part of the State homemakers council meetings. We had a meeting just for women to talk about management of timberland. You might think this is a macho subject, we shouldn't even involve women. Well, I presented the outlook figures that we've heard here, much of the good story, the good news, and we got some women fired up. And a comment that one of the women made was, well if we can't get these men managing this forest land, we women sure can get them managing it. So, there are other avenues for us to take and all of us who are married can appreciate that comment.

There are other avenues that we can take to eliminate what I call "patch of woods thinking." Folks don't realize the value of these acres and the production that these acres can have. So this is something we want to do. One-on-one contact is good. It's great, but by foresters going out and knocking on doors to try to initiate that one-on-one contact is going to limit us. What we need to do is tell the good news here and we'll have folks coming to us for one-to-one contact because there aren't enough foresters to go around in Mississippi for us to be initiating these contacts. We've got less than 1,000 professional foresters in the State and 133,000 nonindustrial private landowners, so you can see what kind of ratio we're dealing with there. We need to use mass media education awareness programs more than we have in the past. Part of my thinking on this is that where there's a will there's a way. If we can develop the will and the recognition among nonindustrial private landowners that these are valuable acres, and dispel this "patch of woods thinking," we can do great things.

What I'd like to say to some folks is that what do you think Detroit would be doing if they had projections on demand the way we have projections on timber demand? Detroit would be gearing up, they'd be making new dies and casting all kinds of whatever kind of hardware they needed to get into the right production mode to produce that product, and that's just the same thing we ought to be doing here. I also say to folk~~s, OK~~, suppose you're left 50 or 100 acres of timberland, you've been left a factory. You can produce a great product with that factory that will be in increasing demand. If you were left a shoe factory, by George, you'd be down there every day making sure that folks were working and that the production was running. The same sort of thing ought to be going on with nonindustrial private landowners. These are the kinds of things that they need to be told and need to be made to understand in my estimation.

In the interest of time, I'll just conclude by reading my concluding statement here. A recent article in the Wall Street Journal discussing the move of the timber industry to the South said:

> **With the influx of new businesses, many Southerners now talk of timber with the reverence once reserved for cotton and tobacco.**

It went on to say:

> **The Southern timber boom, strong as it is now, could turn to bust in a few decades because it rests on a shaky foundation.**

The shaky foundation referred to is the private ownership of the South's timber producing capacity. To assure the Nation of an adequate supply of wood for future needs, public programs can help to shore up this foundation with support for education programs, the forestry incentive programs that we've talked so much about here this morning, and favorable tax legislation, namely capital gains for forestry.

That concludes my comments, Senator. I appreciate the opportunity to speak with you this morning.

Senator **Cochran**. Well, Bob, thank you for being here and adding to the hearings in the way that you have. I think it's been a very appropriate addition to the hearings to have the professional forester's viewpoint in private industry, private consultant, public forestry represented in these hearings. The observations that you've made really gives us a full perspective, I think, of the challenges that we have, the progress that the State has made with industry's help, with Government's help, with private landowners working hard on their own. I appreciate very much all of you being here and contributing these excellent presentations to the hearing. I might say, too, John mentioned that he wanted to polish up a statement formally to submit for the record. We will keep the record of these hearings open for a period of 30 days within which anyone who would like to submit an additional statement, comments, suggestions in the form of a letter, or a prepared statement, we will happily receive and include in the transcript of these hearings and that will be submitted to the committee with the same kind of weight as any of the oral presentations have been received. So I want to encourage any of you who would like to submit any written material to be included in the record of the hearings to do so. You can simply mail that to me, Senator Thad Cochran, U.S. Senate, Washington, D.C., and I'll get it and we will insure that it's included in the transcript of the hearings.

I think we will move on now to our fourth panel to wrap up the hearing. We have Dr. Robert Youngs who is director of the Forest Products Laboratory in Madison, Wis., which is operated by the Forest Service, U.S. Department of Agriculture, here with us today. We have Dr. Fred Taylor who is assistant director of the Forest Products Laboratory at Mississippi State University. This panel is here to provide testimony on utilization of wood resources, opportunities in world and domestic markets, need for forestry research, inventory information, and technology development. We welcome you to the hearing. We're very happy to have you down here. I've been invited to come up to Madison to see the laboratory there. I haven't made it yet, but one of these days I'm going to get up there and see what you're doing there. I'm looking forward to that opportunity. Welcome to Mississippi. You may proceed.

STATEMENT OF DR. ROBERT L. YOUNGS, DIRECTOR, FOREST PRODUCTS LABORATORY, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Dr. **Youngs**. Thank you, Senator Cochran. I'm delighted to have this opportunity to come back to Mississippi to join you in this discussion of forestry's needs for the future. I will confine my oral comments this morning to just a few highlights of my prepared statement and then refer to that for the record.[1] I will emphasize particularly research underway and new technology available now to improve utilization of the Nation's forest resources. I should say at the outset that you should know that Mississippi is playing a prominent role in this development and has every reason to play a more prominent role in the future.

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[1] See p. 103 for the prepared statement of Dr. Youngs.

First a little bit about our laboratory and our research. The Forest Products Lab in Madison, Wis., is part of the Forest Service's research organization and we have a national mission dedicated to improved utilization of the Nation's timber resources. As a Federal laboratory, we carry out research that's designed to improve management and use of timber resources. Much of our research is basic, long term, high risk, the kind that is not appropriate for industry to conduct. However, we do cooperate closely with the industry in planning, conducting, and applying the results of that research. Because of the continuing economic importance of wood as an industrial raw material or fuel and because 28 percent of the commercial forest land base is in public ownership, the Government has a unique stake in insuring that new and improved timber utilization technology is continually evolving. Wood utilization research can help guide and shape the merging technology and foster the wise use of the timber resource by providing the knowledge; first, to use more kinds and parts of trees; second, to convert wood efficiently and economically into high-value products; third, to develop improved products, and finally, to extend their useful service life.

At the Forest Products Lab and other research field stations of the Forest Service, and with strong cooperation from university research labs such as the Forest Products Laboratory here at Mississippi State and in cooperating with others at Jackson State and many other universities throughout the South and other parts of the country, we are conducting research to accomplish these objectives. Let me give you some details and a few examples of some of the recent innovations. If I may just give you some samples here. One of the things we've talked about is the more effective utilization of hardwoods, particularly those for which there are not now markets. A process for producing lumber that's called saw, dry and rip, SDR, is an example of research aimed at more extensive use of hardwoods. It has the potential to produce structural lumber from hardwoods. The sample you have is a section of a 2 by 4 which is made out of blackgum. Blackgum is a species that is particularly difficult to dry and keep straight, so that it will be useful in the form of structural lumber or studs. This process enables a manufacturer to produce at least 95 percent of his material to a high degree of straightness.

Another very cloely related process is the edge, glue and rip process. This is a very small sample. This can be used for either hardwoods or softwoods and it's a way of making wide boards out of small trees by cutting narrow boards, edge gluing them into panels and then resawing them into wider boards and doing this under conditions, again, that enable these to remain straight and useful in the final product.

Another area is the processing of paper. We've already had that mentioned. It's certainly a key industrial operation here in Mississippi. Research to use hardwoods to supplement softwoods continues in pulping and papermaking. I'd like to point out the press drying process for linerboard production, now approaching the point of industrial application, which has been developed at our laboratory working closely with the paper industry. It has the potential to revolutionize the kraft paper industry and the revolutionary part of this is the fact that we can now make strong linerboard out of 100 percent hardwoods. And this has previously required pine and pine will certainly still be used, but this opens up additional options for making strong linerboard or even, perhaps some time in the future, paper for structural applications. This could certainly lead to more utilization of hardwoods in new mills, higher percentages of hardwood for existing operations and more options for effective use of the hardwood resource as well as recycled fiber and, of course, the continuing softwood resources.

I should mention, too, an automated lumber processing system which is under test at the Southern Forest Experiment Station working closely with Mississippi State and Louisiana State Universities. This automatically recognizes and removes lumber defects using visual scanners and computerized control of cutting. It will improve the production of furniture parts from hardwood logs by economically producing high-quality material.

Another area that has been mentioned and I would like to give a little more emphasis to is that of structural flakeboard panels. This is a rapidly developing industry. Twelve plants are already built. Several more have been announced including one that has already been mentioned in Grenada, Miss. Here is an example of structural flakeboard made from softwoods and here is a sample of structural flakeboard made from a mixture of southern hardwoods that has recently been produced by the Martin plant over in Le Moyen, La. This one has just recently begun production, and I think this illustrates new opportunities for using a much broader array of the timber resource in a product which is recognized now to have structural applications and I think can have a great future for augmenting the effective use of the timber resource through this segment of the forest industry.

Wood products in some form have always been a primary construction material in the United States. New wood products and better light-frame construction design are means to improve utilization of wood materials, can cut construction costs and extend timber supplies. An example of this is the truss frame concept, and I have a small sample of the essential part of that here. This concept is a rather simple extension of the truss concept. Now most of us are familiar with the roof truss as well as the floor truss. What this does is build on observations of the behavior of structures in hurricanes and earthquakes, and other natural disasters, to develop a concept in which the entire frame has a high degree of rigidity and the timber is used efficiently so that the cost can be reduced. It provides a frame that can be erected very quickly saving costs of erection, saving inventory costs. Something like 1,300 houses have now been built throughout the country using that concept and with actual reported savings of something in the order of $4,000 per house and the number is increasing rapidly. So here's another idea that's come from engineering research on efficient wood use.

These are just a few examples of how research has led to improved use of timber resources. The payoff has really been very large. For example, Forest Service research played a key role in the development of the particleboard industry. Here in the South, the southern pine plywood industry can trace its origins to pioneering research conducted at the forest products laboratory in close cooperation with many people here in the South during the time that was developed. At the Southern Forest Experiment Station, an economical cold-setting adhesive has been developed from southern pine bark extractives. This adhesive can replace high-cost, petroleum-based products, such as the resorcinol used in laminated timbers.

One often asks about the economics of this. Is it a good investment to be putting funds into this kind of research? We've tried to develop some accurate estimates of the economic dimensions of some of these improvements. We have cooperated in studies of the impacts of utilization research and the economics related to these. These studies are beginning to show rather clearly that there is a favorable return on the Government's investment. I might add, parenthetically, that the first studies that we've seen show that the rate of return on this research is something in the order of 16 percent after inflation, which is really a very good rate of return. So, we see many developments already that are beginning to pay off rather dramatically.

We see exciting research possibilities on the horizon. Our research in the area of biotechnology, for example, is pointing out possibilities for biopulping wood for paper production. This past year, our scientists discovered the first lignin-degrading enzyme. This opens up possibilities for many applications, including pulping, bleaching pulps, converting lignin to useful materials, and cleaning up lignin-derived wastes from pulp and paper mills. We anticipate that we will be employing genetic engineering in our research for utilization improvements in the very near future. This is certainly something that's in the likely prospect. As you can see, then, there are many opportunities to improve the use of our wood resources. Our research program, we think, is focused on the most promising of these and we are carrying it out in close cooperation with the industry and with the highly skilled scientists at many universities throughout the country.

This concludes my prepared remarks, Senator Cochran, and I thank you again for the opportunity to be with you.

Senator COCHRAN. Thank you very much, Dr. Youngs, for that interesting presentation, and we appreciate so much, too, your bringing along these samples of the research and some of the new products that are now being manufactured by companies here in the South and around the country. We appreciate having that perspective and that report on the activities of the forest products laboratory at Madison. It's one of the Nation's great resources, we think, in the forest products area.

Fred Taylor, assistant director of the Forest Products Laboratory, Mississippi State University. We were just up at your shop not too long ago and had a grand tour and appreciated your hospitality on that occasion and we're glad that you're here today to help conclude our hearing. You may proceed.

STATEMENT OF FRED W. TAYLOR, SCHOOL OF FOREST RESOURCES, MISSISSIPPI STATE UNIVERSITY

Mr. TAYLOR. Senator Cochran, I really appreciate the opportunity to speak on the topic of research here today.[1] I think it's appropriate that research is one of the last topics we discuss because it interacts so completely with all the other things that have been said. My comments today and written statement that has been prepared for this subcommittee represents my own views and, to some extent, the views of my colleagues from the university research community. Those of us in the academic community are, of course, interested in a wide range of issues; social issues, economic issues, political issues, philosophical issues, and so forth. But the statement today focuses particularly on research.

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[1] See p. 106 for the prepared statement of Mr. Taylor.

I think there are very few Americans in 1983 who do not appreciate the importance of research, or who do not recognize the advances that are attributable to research. These research advances, the results of them, are evident on all sides. We have sophisticated weapons with which to defend ourselves and we have rapid transportation facilities to move us about and to bring us goods and services, we have almost instant communication that puts us in touch with people, news, sporting events, and most recently the world series, we have an abundance of high-quality food, various devices that make our lives longer and happier.

I think, we Americans not only recognize the contribution of research, but we also support it. We support it by contributions to research organizations such as the Cancer Society and the Heart Fund and so forth. I think we also ask our elected officials to appropriate public funds for research. We all heard Mr. Thigpen say just a little while ago that he would be willing to have his taxes increased for and I underline research to do something about the kudzu. I mention that not because I think he's lobbying for increasing taxes, but it represents an attitude toward research, and I think this says something to us. Americans especially expect their Federal Government to support research in some of the basic areas that are not likely to be funded by private enterprise, and Dr. Youngs has given some specific examples of research successes.

So this statement today is not to defend the need for research. Instead, it's to highlight the need for research in special areas of forestry and wood products. This statement focuses attention separately on land use research and processing research. I do not have time to verbalize all of this document, so I'm going to talk specificaly about wood products research, the area that I know something about. I call your attention to the written statements in regard to land management.

A recent survey of universities from Texas around to Virginia revealed that there were 73 scientists devoting a total of 43 scientific years annually to forest products related research. And this level is extremely small by any standard of comparison. It's especially small in comparison to the economic importance of the wood industry throughout the southern pine region.

As a nation, we use more wood per person than any other nation in the world. We also are one of the major suppliers of the world's wood. We produce 35 percent of the world's paper, 45 percent of its plywood, and 20 percent of its softwood lumber. Much of this production is in the South. The South, for example, produces two-thirds of all the pulp and one-third of all the lumber used in the United States. The South, which did not produce plywood at all 20 years ago, has just this year taken over leadership in the Pacific Northwest in the production of plywood.

I'd like to point out, too, that the South is a major user of forest products. Approximately 85 percent of the lumber produced in the South is used in the region, much of it used in housing. Over 50 percent of the housing projects during the first 5 months of this year were in the South. That as the Census Bureau defined the South and they include Oklahoma, Kentucky, Delaware, Maryland, and I'm happy to say Washington, D.C., is included in the South in that report.

You've heard figures today talking about the importance of the wood industry to Mississippi. That one out of five industrial jobs in Mississippi are in wood industry and that about 50 percent as many additional jobs are generated in other areas but as a result of the activity of the forestry industry in the State. And Dick Allen has said that what's true in Mississippi is, in a representative way, true throughout the southern pine region and so I'm confident that these figures for Mississippi also represent the importance of forest products industry to the other Southern States. So my point is that expenditures for research in this very important segment of our economy is disproportionately low.

Now this statement, and I'm sure the comments that other people have made and the figures that they've cited, are not intended to be critical of either present State or Federal appropriations for research. I feel like the balance is certainly excellent. University research fundings in the South consist of 47 percent State funds, 38 percent Federal funds, and 15 percent industrially supported projects. Mississippi especially has excelled in funding forest products research. You said you just visited our laboratory. We have more than a little over $1 million a year State appropriations to fund the activities of that laboratory, and the result is that we have an outstanding facility at which approximately one-third of all the university sponsored research in the South is conducted.

I'm involved daily with research and I don't have any illusions about magical solutions that can come from research. But I'm also aware that without greater investment in research that we'll not be able to capitalize on the potential for improved productivity and efficiency in this economically significant area that's been outlined by the other speakers this morning. I know that basic research can be conducted very efficiently at universities. I know that university research is seldom proprietary. Therefore, it quickly enters the stream of knowledge and it also is assimiliated by students who will be the professional wood scientists and researchers of the future.

Let me say in summary that this statement, the part that I have said and particularly the written statement, makes a very strong plea for additional funding for forestry research and technology development. It's predicated on the fact that the thousands of nonindustrial private landowners in Mississippi and throughout the South operate in a market structure which approaches, on the seller's side at least, a perfectly competitive market. And as a consequence, the individual timber producer cannot influence the price of his timber output in the market. He is not sufficiently large to undertake independent research and, even if he was inclined to do so, he could not cover his research investment costs from his timber production revenues. So if research and technology development are to take place in this sector of the economy, they must be publically funded. We believe that it's in the Nation's best interest to have in place a well-funded system which creates new knowledge in technology through the research at land-grant universities which uses new knowledge to educate professional wood scientists and foresters.

We feel that additional Federal funds are needed for the purpose and we ask that you find a way to increase Federal support for this kind of research. Thank you.

Senator COCHRAN. Thank you very much, Dr. Taylor, for the excellent presentation. I was impressed when I visited the laboratory at Mississippi State with the use of computer engineering and communication that's all brought together in inventorying our forest resources. While this is not a part of Dr. Taylor's presentation to the committee today, this is, I think, one of the important things that is being done today that offers us factual information which was really only guesswork a few years ago, but now through the use of satellite photography and all of the latest in engineering and communications techniques, we are able to accumulate data from sampling out on the ground to learn more about our forest resources and trends so that we can more accurately predict what needs to be done to make sure that we do protect these resources and take advantage of the information that's out there and available for the industry and for policy decisions.

Again, let me express my appreciation to all of you who have been here today attending these hearings and particularly those who have been involved in our panels. I really think that the information that we've accumulated today, the transcript of these hearings, is going to be very helpful to the legislative committees, the Appropriations Committees, too, with whom we're going to share the suggestions that have been made here today and the factual data that's been presented to the committee. I'm rather unusually situated, I think, as a member of both the Legislative Committee on Agriculture and the Appropriations Committee to try to have some influence in the policies and the decisions that go into this area of forestry. The Interior Appropriations Subcommittee has a lot to say about how much of our resources are allocated for U.S. Forest Service, activities relating to forestry, but so does the Agricultural Appropriations Committee which I chair, have something to say about that and it's really sort of a cross pollination process. But being able to serve on those two subcommittees and then the general Committee on Agriculture gives me a feeling of special responsibility to communicate our State's interests and views in the legislative process in Washington and I think this hearing has better equipped me to be a spokesman for forestry and for landowners in the South when it comes time to try to advance what we think is best in terms of decisions that have to be made. So I appreciate your helping me do what I hope will be a better job for our State in this area.

There is an indication that there are others who are here who might want to submit statements for the hearing to be included in the record and I appreciate that very much. I know that we have Chauncey Tanner here today. Chauncey stand up. He is from Jasper County, Heidelberg, Miss. Chauncey is forestry chairman of the Mississippi Association of Conservation Districts and we appreciate very much your agreeing to submit a statement for our hearing. That will be very helpful to us. And there may be others who are here. I appreciate your attendance and the cooperation that you've provided to the committee.

I also want to offer a special word of thanks to William Morris who is the assistant to the president of Jones Junior College for helping us set up and arrange for the hearing and being here with us to help see that everything went well. We also have had the benefit of assistance from the Masonite Co., specifically, Roy Jones, who is a security chief, has helped us actually set up the hearing and has loaned us the sound system that we're using this morning which we appreciate very much. Jim Huff at Masonite helped arrange that also and our special thanks to Dr. Terrell Tisdale who is president of Jones Junior College for letting us use the facilities here at the campus.

With that, let me announce that the hearing will be adjourned and we appreciate again the fine cooperation that everybody has made available to the committee. Thank you very much.

[Whereupon, at 12:35 p.m., the subcommittee adjourned, subject to call of the Chair.]

APPENDIX

STATEMENT OF J. LAMAR BEASLEY, DEPUTY CHIEF FOR PROGRAMS AND LEGISLATION, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

The Forest Service appreciates the opportunity to appear before the Subcommittee today to discuss Forestry's needs for the future.

Forestry is important to our economy. In Mississippi, timber is the leading source of income in rural areas. In 1980, the value of logs and bolts at processing plants in the State exceeded one-half billion dollars, ranking ahead of cotton and soybeans. In the Nation, timber accounts for over a quarter of the industrial raw materials consumed. In one form or another--as housing, furniture, containers, books, writing paper, or fuel--products made from timber are used by everyone.

We think timber will continue to be important and in my statement today I want to discuss how we are using and managing our timber resources. In the late 1970's, the Forest Service completed a comprehensive review of the present and prospective timber situation 1/. In the last year, a new look was taken to update this analysis as a part of the work underway to prepare the recommended Forest Service program which will be submitted to Congress in 1985 as required by the Forest and Rangeland Renewable Resources Planning Act. Although there are changes to reflect new data, improved analytical methods, and different expectations about the future, the basic timber outlook is much as it has been in the past.

In the future, as in the past, demands and supplies of timber will be largely determined by such things as growth in population, income, and economic activity; technological and institutional changes; energy costs; capital availability; and investments in forest, range, and water management, utilization, technical assistance, and research programs.

Forest Resource Report Present expectations about future changes in these basic determinants are not much different today from those in the late 1970's. In the last five decades, the population of the United States has increased from 123 million to 234 million people. The latest estimates of the Bureau of the Census show population continuing to grow, with the mid-level projection reaching 304 million by 2030 (figure 1). Economic activity, as measured by the gross national product in constant dollars (net of inflation and deflation), increased by over four times in the last five decades. In this period, there has been a major depression and a number of recessions. In each case, the economy has recovered and it is expected to continue to do so in the future. The basic forces that bring about long run growth are still present. Thus, the latest projections of the Bureau of Economic Analysis show that economic activity will nearly quadruple again by 2030 (figure 2). Total income available for spending (disposable personal income) is also projected to be nearly four times larger by 2030; per capita income will increase almost three times (figure 3).

These projections of population, economic activity and income are a measure of the job ahead. We must not only meet the timber needs of another 70 million

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1/ U.S. Department of Agriculture, Forest Service. An Assessment of the Forest and Range Land Situation in the United States. For. Res. Rep. 22. Govt. Print. Off., Washington, D.C. 352p.

people but the demands of 304 million people with purchasing power nearly triple that of today. Of course, no one knows what the future holds, and what actually happens may be greatly different from what the above assumptions describe. However, these assumptions are consistent with general societal goals of full employment, continued economic growth, rising income, and current expectations about the future.

Although much is uncertain about the future we do know that the consumption of most timber products has been rising. There was no well defined upward or downward trend in lumber consumption between 1950 and 1980 (figure 4). Pulpwood use, however, increased nearly three times and plywood more than four times (figures 5 and 6). The recent recession caused a short-term drop in consumption, especially for lumber and plywood. The use of roundwood for fuel followed a long downward trend through the mid-1970's (figure 7). Since then, consumption has increased rapidly in response to rising costs of oil and natural gas; in 1980 it was five times that in 1976.

As illustrated in figures 4-7, the long run demands for all major timber products are projected to go up over the next five decades. As in the past, the demands for some products rise more rapidly than for others. Roundwood fuel demand rises at first and then after 2010 begins to decline, a response to projected increases in stumpage prices and fuelwood costs.

The demands shown in the preceding figures are in the standard measurement units for the various products--board feet for lumber, square feet for plywood, and cords for pulpwood and fuelwood. When these are converted to cubic feet roundwood equivalent, that is, the volume of roundwood (round sections of trees) needed to produce the various products, the total demand for timber rises from 15.7 billion cubic feet in 1980 to 25.8 billion in 2030 (figure 8). The demand for softwood timber increases from 10.7 billion cubic feet in 1980 to 15.1 billion in 2030--hardwood timber demand increases from 5.0 to 10.7 billion cubic feet.

A substantial part of the projected increase in softwood timber demand takes place by 1990. This is in response to an expected surge in homebuilding in the last half of the 1980's as the large numbers of people born during the 1950's and 1960's seek their own place to live. Pent-up demands resulting from the recent low levels of housing construction will also contribute to the surge in housing in the late 1980's. However, even beyond the 1980's, softwood timber demands continue to rise and by 2030 will be some 1.4 times the consumption in 1980.

Projected demand for hardwood timber will increase 2.1 times by 2030. This is largely due to growth in demand for pulpwood, fuelwood, and products such as pallets, railroad ties, and furniture.

Timber product imports, valued at $8.4 billion in 1982, have been rising and have supplied part of the past domestic needs. Imports are expected to continue to go up until about 2010 when they level off at about 3.9 billion cubic feet, roundwood equivalent.

Exports of timber products, valued at $7.2 billion in 1982, have also been going up, but because of offsetting trends--such as a decline in softwood log exports and a rise in woodpulp and paper--the recent levels of 2 billion cubic feet will not change much over the projection years.

Given the above trends, net imports--total imports less total exports--will increase to 1.6 billion cubic feet in 2030. This will satisfy part, but only a small part, of the higher demands projected for the future. Domestic forest lands must supply most of the demands.

We have a huge timber resource in the United States. Commercial timberlands--those that are capable of growing at least 20 cubic feet of wood per acre per year and not reserved for other uses--contain some 792 billion cubic feet of roundwood (figure 9). About two-thirds of this is in sawtimber trees (trees large enough to contain at least one log suitable for the manufacture of lumber). Another quarter is in poletimber trees (trees from 5 inches in diameter at breast height up to sawtimber size, and now or prospectively suitable for industrial timber products). The remaining 10 percent of all roundwood volume is in rotten, cull, and salvable dead trees. Some of the latter may be suitable for lumber and veneer, but most of it is usable only for pulp, fuel, and other products where there are no significant log quality requirements.

Comparisons of actual and potential net annual timber growth (total growth less mortality) with timber removals (volumes removed by timber harvesting, clearing, or changing land use) show that the hardwood forests and eastern softwood forests can support additional timber harvests. However, these balances will change, and future harvests, particularly in the decades beyond the year 2000, could vary over a wide range. Nonetheless, assuming that commercial timberland owners continue to respond to price and inventory changes and manage their timber stands much as they have in the recent past, timber harvests can be increased substantially in most regions during the next few decades.

Total projected softwood roundwood harvest rises from 9.6 billion cubic feet in 1980 to 11.9 billion cubic feet in 2030, an increase of 24 percent (figure 10). Although the outlook is for increased softwood harvests nationally, there are important differences among the major softwood timber-producing regions. The projected annual softwood timber harvests in the Douglas-fir subregion of the West remain close to the 1980 level of 2.3 billion cubic feet until 1990 then decline slightly to about 2 billion cubic feet, a level that is roughly maintained through the rest of the projection period. (This projection assumes continuation of National Forest harvest levels of the late 1970's.) In contrast to the trends in the Douglas-fir subregion, softwood timber harvests in the South are projected to rise from about 4.1 billion cubic feet in 1980 to 7.3 billion in 2030.

Projected hardwood harvests will almost triple, rising from 3.4 billion cubic feet in 1980 to 9.4 billion in 2030 (figure 11). The largest increases will be in the South.

The data on projected harvests (supplies of timber) make it clear that there is not likely to be a physical shortage of timber in the United States in the decades immediately ahead, a prospect that exists in many regions of the world. A comparison of projected supplies with projected demands shows, however, that the demands are rising faster than supplies. Thus, the outlook is one of increasing economic scarcity with rising timber and timber product prices.

The outlook for softwoods is illustrated in figure 12. Projected demands on domestic forests for softwoods (upper line) rise to 11.7 billion cubic feet by the year 2000 and 13.9 billion by 2030. Projected supplies of softwood roundwood from domestic forests (lower line) show more moderate increases to 11.0 billion cubic feet in the year 2000 and 11.9 billion by 2030.

In a competitive economy, such as that operating in the timber sector, this means that prices will rise to the extent necessary to bring about an equilibrium (middle line) between demands and supplies. For example, in the South, the real price for softwood sawtimber stumpage (trees standing in the forest) measured net of inflation or deflation will go up at an average rate of 2.1 percent a year during the five decades 1980-2030 (figure 13). In the Douglas-fir subregion of the Pacific Northwest, real prices rise more slowly, at an average rate of about 1.4 percent annually, suggesting that many landowners have the prospect of attractive investment opportunities.

The outlook for the bulk of the hardwood timber--the smaller sized timber of common species--is somewhat better than that for softwood (figure 14). However, after the year 2000, as hardwood inventories begin to show substantial declines in response to increased removals, stumpage prices move up. The upward price pressures are likely to be strongest in the North Central region.

During recent decades, there have been inventory pressures on high quality preferred hardwood species--such as select white and red oak, walnut, hard maple, and black cherry. The increases in stumpage prices that occurred in this period for the preferred species have reflected this situation. Such increases are likely to continue.

Rising stumpage prices will, of course, be reflected in prices of timber products. For example, softwood lumber and plywood prices measured in real terms increase at annual rates of 1.3 percent over the projection period. Real price increases for hardwoods average about 0.8 percent per year for lumber and 0.2 percent for plywood.

The findings of the Assessment are based on assumptions and projections of a large number of demand and supply determinants such as economic activity, housing construction, import duties, export volumes, management intensity on private lands, National Forest harvests, and commercial timberland acreages.

Future changes in these determinants can be quite different from what has been assumed. Expectations about these determinants also change with time--some of the current expectations vary considerably from those prevailing in the late 1970's when the analytical work was underway.

Changed future expectations about housing and some of the other demand determinants that have become evident since the 1979 Assessment analysis was completed have been incorporated in the demand projections presented above. No changes were made in the basic timber resource projections, excepting (1) those for the Douglas-fir subregion which were changed to reflect new data on the timber resource in western Washington, (2) timber harvests for the National Forests which in most regions were held at the levels prevailing in the late 1970's, and (3) some adjustments reflecting new assumptions on prices.

There are, however, some recent developments which suggest that it may be necessary to consider changed expectations about management on private ownerships. In the South, for example, some of the newest Forest Survey data on the timber resource and some of the first preliminary results from new resource projection systems now being developed indicate that management on forest industry lands may be even more intensive than that assumed in our latest resource projections. This would result in higher softwood timber inventories and supplies over the projection period. On the other hand, the same data and analyses indicate that part of the forest industry lands may not be suitable for intensive softwood management, and that softwood timber inventories and supplies on the farmer and other private ownerships are likely to be below the projected levels in the 1979 Assessment. Further, data in studies such as the "1980 Appraisal" prepared by the Soil Conservation Service, suggest that the losses by 2030 of commercial timberland may be considerably larger than the 36 million acres we have been assuming. When this development work is completed, and a new resource data base compiled, projections of changes in the timber resource may be different from those we are currently using. A new study is underway of the timber situation in the South in which revised projections will be made. This is a joint Forest Service, forest industry, and State effort, similar to the study of the economic opportunities for management intensification that was completed a few years ago.

It is also possible that projections of timber harvest from the National Forests may be revised after the National Forest land and resource management planning that is currently in progress is completed. The National Forests contain over one-half of the softwood sawtimber inventory in the nation. National Forest planning and the 1985 RPA Program may provide for timber harvests exceeding those levels experienced in the late 1970's and result in greater supplies from this source.

Although there was not an adequate basis for further changes in the resource projections, the effects of different assumptions on management intensity, harvest levels, and other supply determinants have been simulated for timber demands; stumpage prices; softwood lumber production, prices and imports; and growing stock inventories. The effects of different assumptions on demand determinants such as economic activity, housing construction, import duties, and export volumes have also been simulated.

As might be expected with more intensive management on forest industry lands or higher harvest levels on the National Forests, the projected increases in stumpage and product prices are reduced. On the other hand, if higher exports and greater losses of commercial timberland are assumed, stumpage and product prices will rise beyond the projected levels.

It is, of course, possible to simulate a future in which prices will not rise. If it is assumed, for example, that we will simultaneously have low timber demands, intensive forest management on all ownerships and high product yields, prices will remain relatively stable. Such assumptions are, however, logically inconsistent. For example, the resulting stable prices would eliminate price incentives for more intensive management and increased product yields while at the same time increasing the demand for timber products.

In addition, and more to the point, we know of no new analyses or data which would support assumptions that timber demands will be lower, management more intensive on all ownerships, and product yields higher than those we are currently using as the basis for the Forest Service outlook.

In summation, nearly all of the simulations that have been analyzed indicate that the Nation is faced with the prospect of continuing and substantial real increases in stumpage prices for most species and sizes of timber, and in the prices of most timber products. And the increases will very likely be largest for softwood sawtimber; high-quality hardwood sawtimber of preferred species; and the products, mainly lumber and plywood, made from this timber. This assumes that management would continue into the future as it has in the last couple of decades.

Since the timber sector operates in a competitive economy, as prices move up, landowners will tend to invest more and consumers will use less. These relationships will determine the level of production of mills manufacturing lumber, plywood, and pulp products. For instance, by 2030, softwood lumber production will be several billion board feet below the volume that would have been demanded without real price increases.

These same relationships will largely determine the capability of United States producers to compete in export markets with producers in other countries.

Rising real prices will also affect the standing timber resource. Owners will increase harvests as prices go up, and as harvests rise, net annual growth and inventories will be changed. The largest impacts will be on forests in the South. By 2030, growing stock inventories on private ownerships in the South will be 45 percent below that projected without rising real prices and assuming recent trends in management (figure 15). The rising prices will, of course, induce more intensive management with an associated increase in net annual growth. But the intensification in management is likely to be limited, and significant effects on net annual growth and inventories in the South may not be evident until late in the projection period.

The decline reflects, in part, the pine regeneration problem which has been evident for some time. A large proportion of land from which pine is harvested is simply not regenerated to pine. Much of the South's present pine stands resulted from natural seeding on abandoned cropland. Unless owners deliberately regenerate pine after harvests, the natural succession is to oak-pine or hardwoods.

Let me emphasize that these projections simply show us where we are heading. We do not really expect softwood inventories to drop as shown in figure 15, or that prices will rise to the extent our projections show, because we have many opportunities to change such prospects. More specifically:

1. Timber supplies can be extended by:
   --Increasing the useful life of wood products by preservative treatments; improving designs of new structures, and renovating and maintaining existing structures rather than replacing them.

   --Improving efficiency in harvesting, milling, construction, and manufacturing.

   --Utilizing unused wood materials such as logging residues; treetops and limbs; rough, rotten, and salvable dead trees; trees in urban areas, fence rows, and the low productivity forest areas; and urban wood wastes.

2. Net annual timber growth can be increased by:
   --Regenerating nonstocked and poorly stocked commercial timberlands, harvesting and regenerating mature stands, and converting existing stands to more desired species.

   --Applying intensive timber management practices such as species and spacing regulation, fertilization, and use of genetically improved trees.

   --Using management and harvesting practices to prevent or reduce losses caused by natural mortality (suppression), undesirable vegetation, wildfire, insects, diseases, and poor logging practices.

3. Harvests from the existing timber resource can be increased by:
   --Accelerating harvests on National Forests in Washington, Oregon, northern California, northern Idaho, and western Montana that have large inventories of old-growth softwood timber.

   --Increasing softwood and hardwood timber harvests on forests in the East.

In these latter cases, sustaining increased harvests on the National Forests in the West and on the forest lands in the East beyond a few decades will require large investments in more intensive management programs to increase net annual timber growth.

Only part of the biological opportunities to increase net annual timber growth can be expected to yield an acceptable rate of return on the investments necessary to put them into practice. But the joint Forest Service-forest industry-State study completed a few years ago showed that the economic opportunities are large. For example, there are opportunities which would yield 4 percent or more measured in constant dollars (net of inflation or deflation) on 168 million acres of commercial timberland (figure 16). This represents about 35 percent of the Nation's total. With treatment of these acres, net annual timber growth could be increased by 13 billion cubic feet, a volume equal to about three-fifths of the net annual timber growth.

Most of the economic opportunities for increasing timber growth are in the South. And most of these opportunities, some 89 million acres, are on the nonindustrial private ownerships. Similar economic opportunities occur on another 24 million acres in forest industry ownership. This also represents about two-thirds of the commercial timberland in that ownership. While some additional economic opportunities exist on public ownerships, they are relatively small because public ownership of commercial timberland is quite limited in the South.

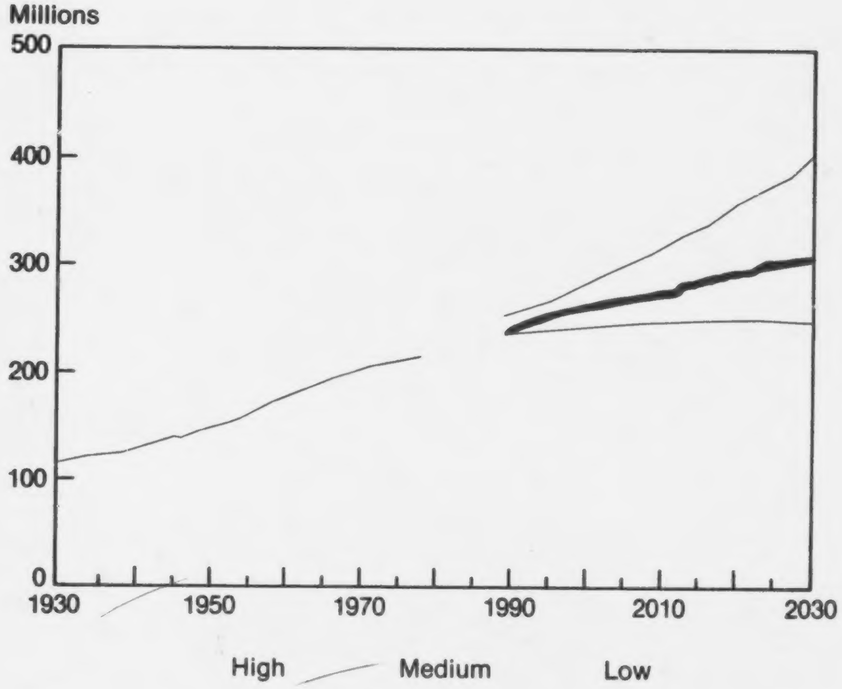
In appraising economic opportunities in the South, several factors must be kept in mind. First, the opportunities are estimates, based largely on the judgments of experts from universities, the Forest Service, and State forestry agencies. Second, they include all commercial timberland without regard to the size of tracts, objectives of the owners, accessibility, or other factors. So, the data are not precise measures of the economic opportunities.

Nonetheless, even after allowing for uncertainties, it is evident that large opportunities do exist to invest in timber management practices that will yield good rates of return and result in major increases in softwood supplies. It is also clear that we are not taking advantage of the opportunities. We are largely letting natural successional forces determine the kind of forest we will have in the future. If this trend continues, the South's fourth forest may largely be a hardwood forest.

That concludes my prepared statement, Mr. Chairman. I would be happy to answer your questions or discuss points of my statement in greater detail.

FIGURE 1

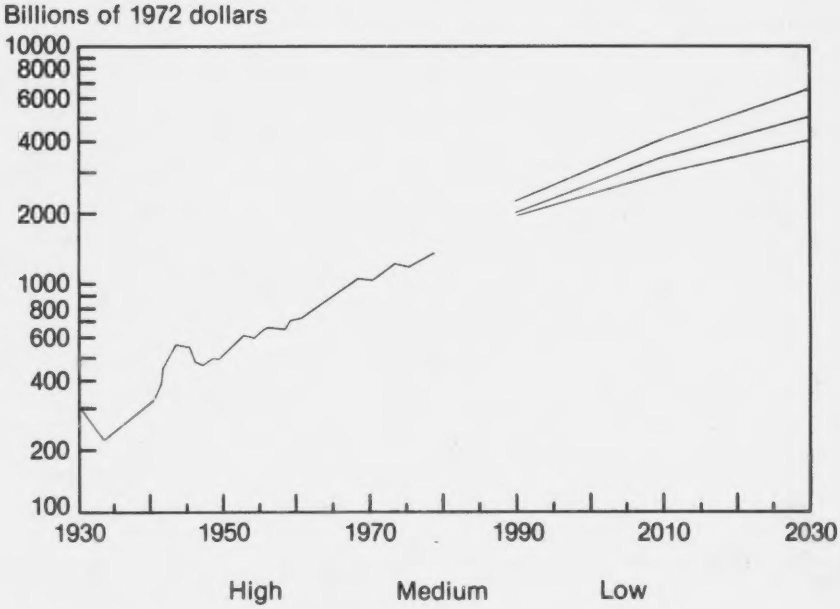
Population with Projections



Source: Bureau of the Census

FIGURE 2

Gross National Product
With Projections



Source: Bureau of Economic Analysis

FIGURE 3

Per Capita Disposable Personal Income With Projections

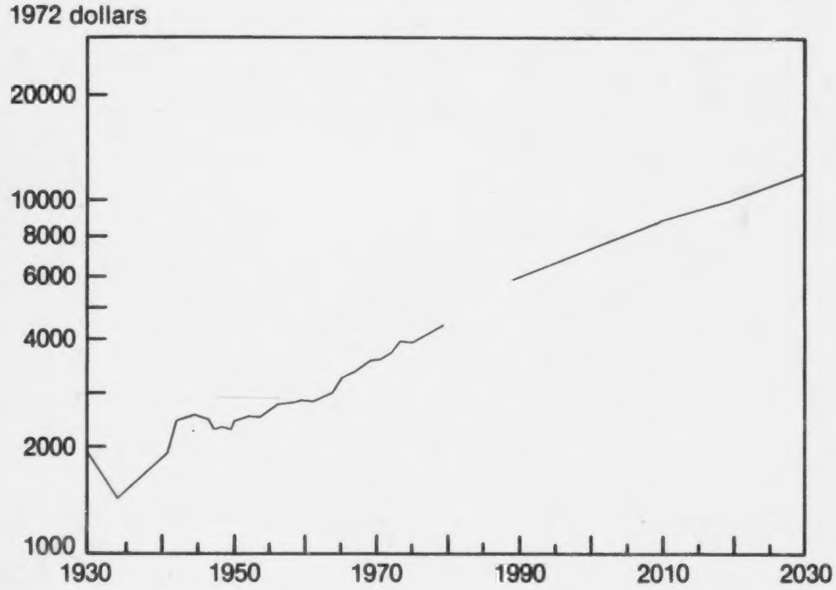


FIGURE 4

Timber Products
Demands—Lumber

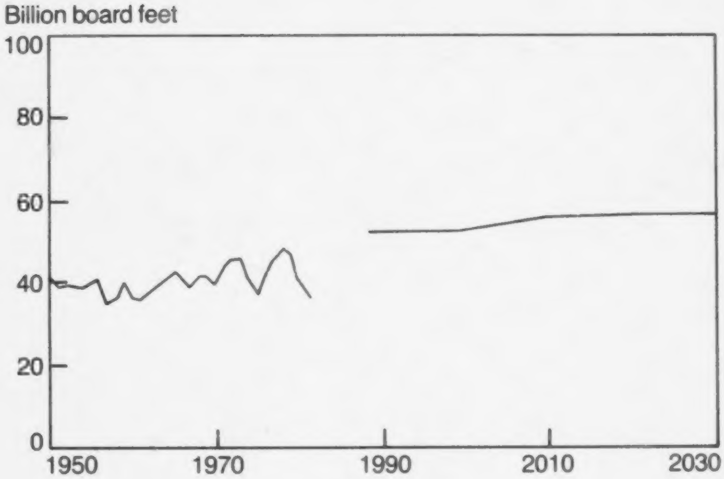


FIGURE 5

**Timber Products Demands—
Pulpwood in U.S. Mills**

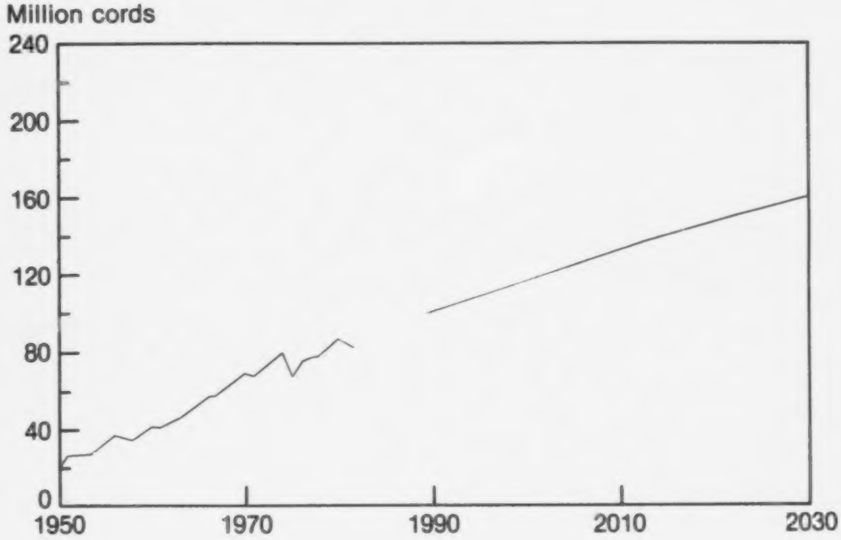


FIGURE 6

Timber Products Demands—Plywood

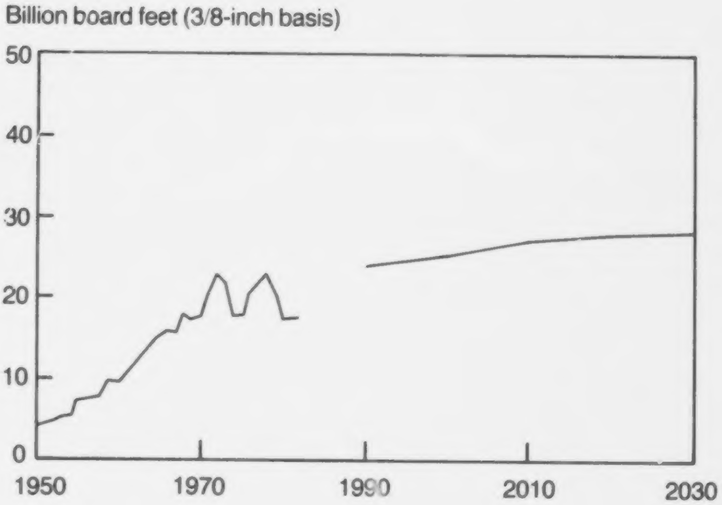


FIGURE 7

Timber Products Demands--Fuelwood (Roundwood)

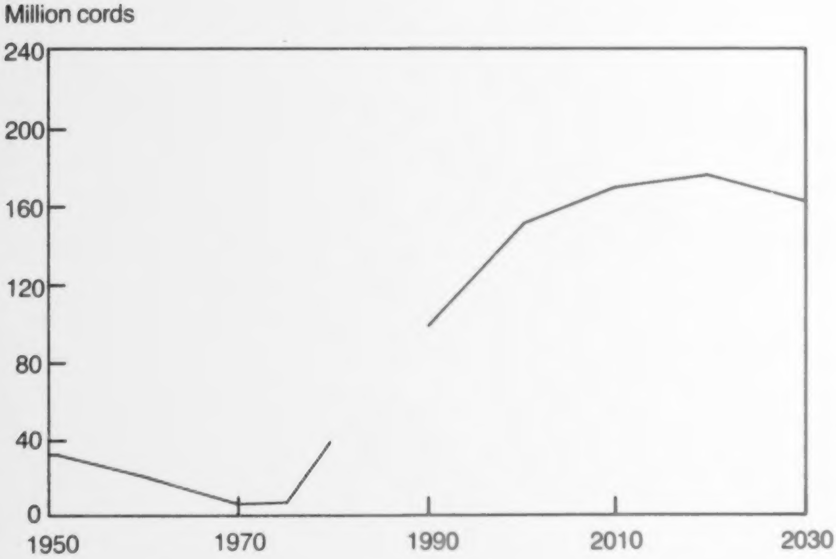
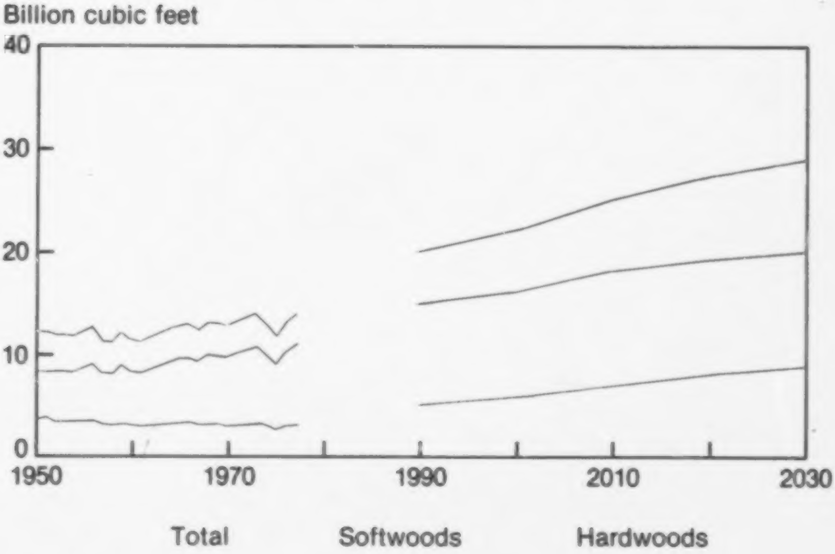


FIGURE 8

Roundwood Consumption with Projections



*Base level prices

FIGURE 9

Timber Inventory by Class of Timber, 1977

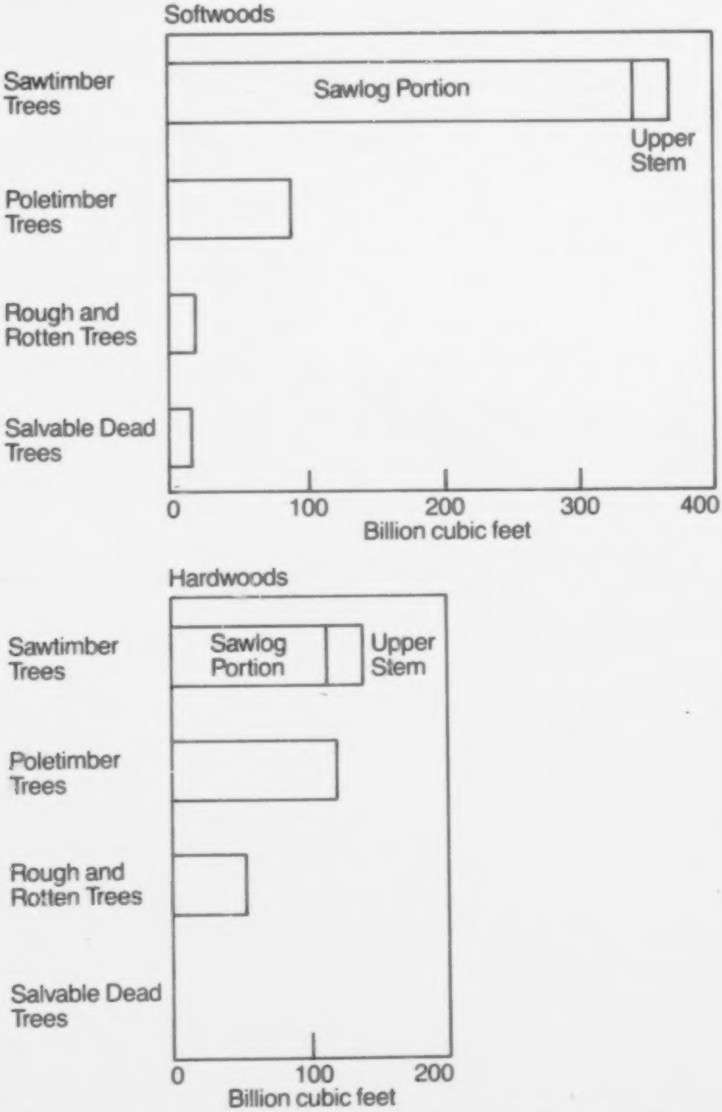


FIGURE 10

Softwood Roundwood Harvests with Projections
(Billion Cubic Feet)

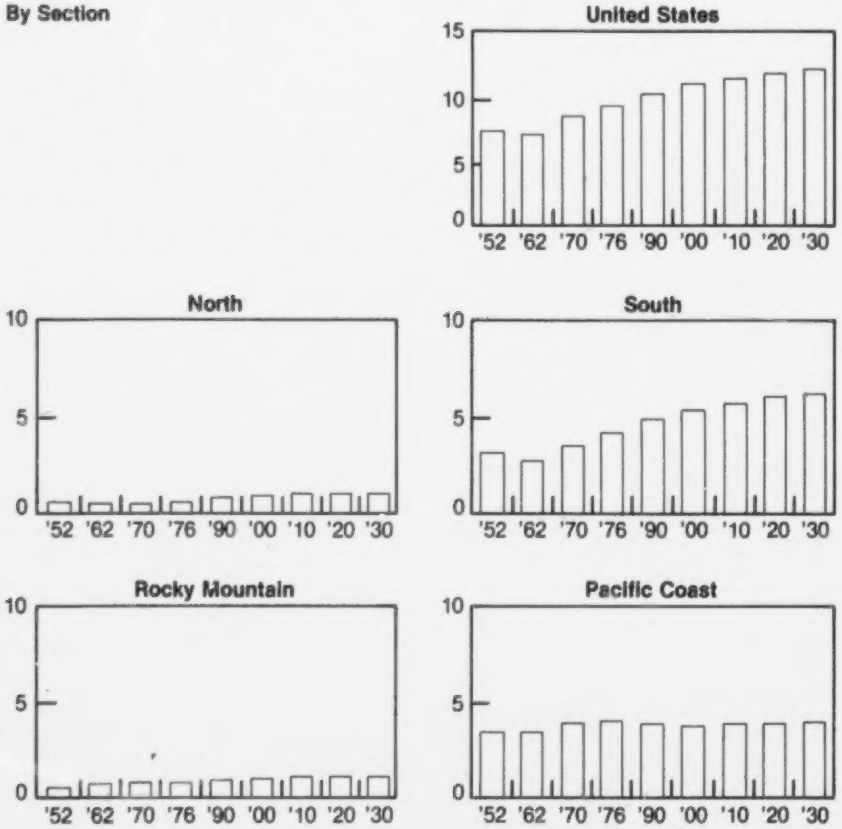


FIGURE 11

Hardwood Roundwood Harvests with Projections
(Billion Cubic Feet)

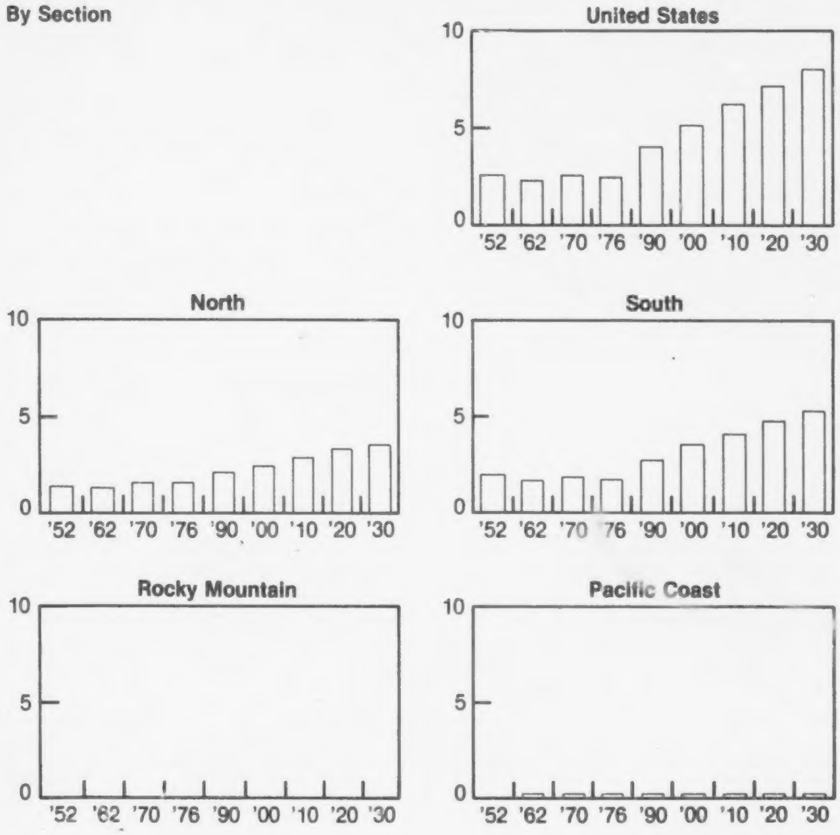


FIGURE 12

Softwood Roundwood Demands and Supplies—Domestic Forests

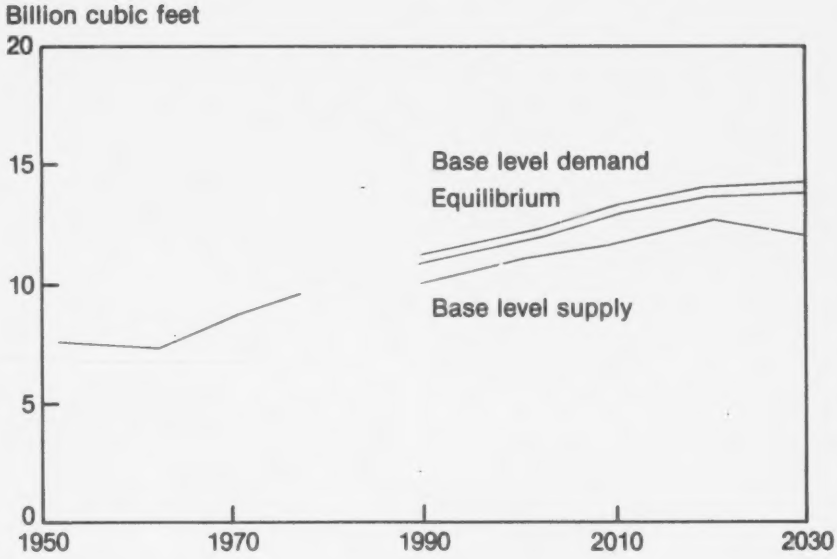
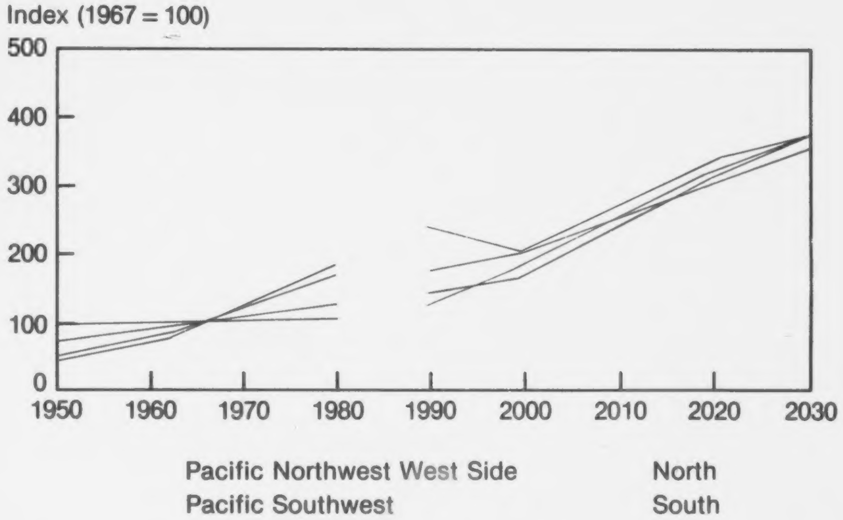


FIGURE 13

Softwood Stumpage Price* Indexes by Region, 1950-80, With Projections to 2030



*Per thousand board feet, international ¼-inch log rule.

FIGURE 14

Hardwood Roundwood Demands and Supplies—Domestic Forests

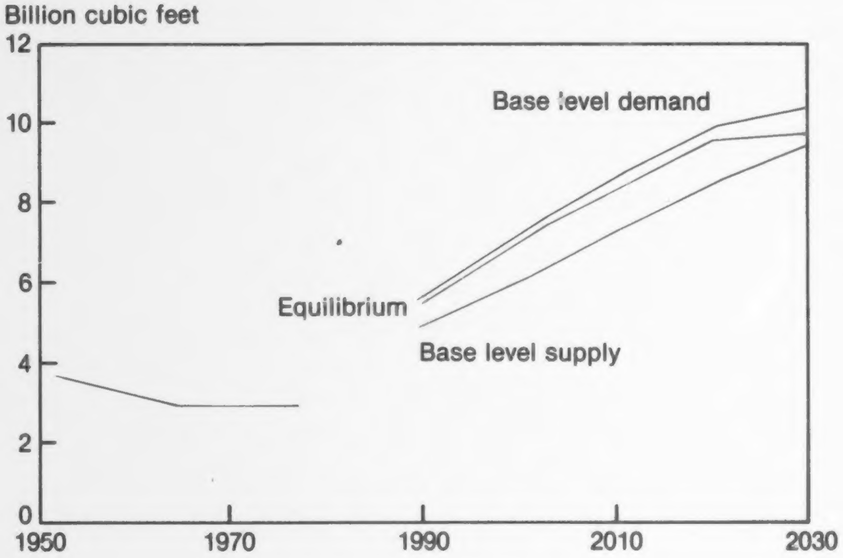


FIGURE 15

Softwood Roundwood Inventories on Private Ownerships in the South

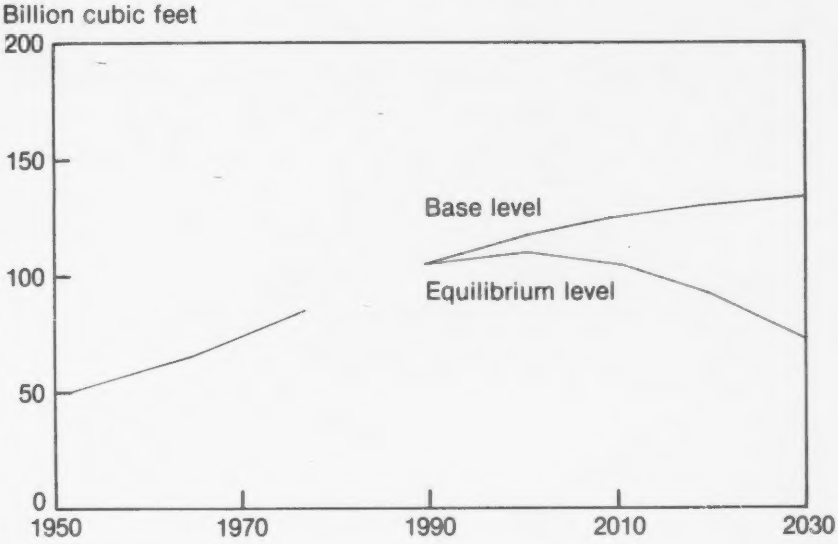
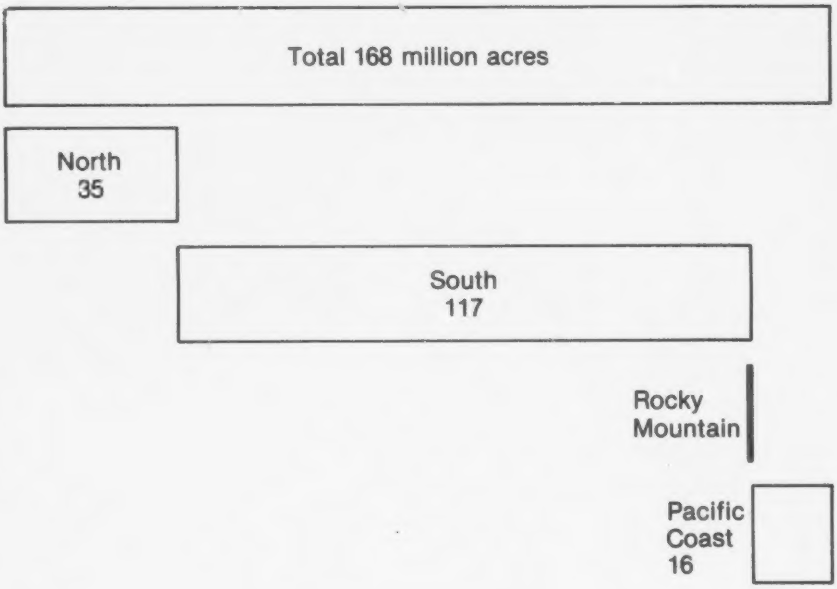


FIGURE 16

Economic Opportunities for Management Intensification



STATEMENT OF OSCAR C. TISSUE, JR., PLANNER, MISSISSIPPI FORESTRY COMMISSION

Gentlemen:

My name is Oscar C. Tissue, Jr., Planner for the Mississippi Forestry Commission, 908 Robert E. Lee Building, Jackson, Mississippi. I am representing State Forester Robert S. Moss.

The first topic I will address is the economic health and general condition of Mississippi forestry, considering the importance of this resource to the economy now and what it could mean in the future.

In 1977, Mississippi had 16.5 million acres in commercial forest land, 54 percent of the total state land area. A comparison of the 1966 and 1976 forest surveys revealed the following:

1. Commercial forest land decreased 38,760 acres annually, a decrease of 20,000 acres likely continues annually (Agriculture, urbanization, and other non-forest uses).
2. Softwood growth, primarily pine (major commercial species in Mississippi) increased only 12.5 percent while harvest increased 96 percent.
3. Softwood drain was rapidly approaching growth and drain would exceed growth in the early 1980's; probably has happened.
4. Over 130,000 private non-industrial landowners own 11.8 million acres (72%) of the commercial forest land; 31.2 percent of the landowners are in a position to implement needed improvements, provided funding is available.
5. Private non-industrial forest landowners (PNIF) convert 106,200 acres of pine type annually to low quality hardwood following harvest. Only 50,000 acres were reforested after harvest in FY 1983.
6. 9.2 million acres of private non-industrial forest lands are best suited for growing pines. Only 1.0 million acres are producing at near their potential growth rate. The remaining 8.2 million acres need either stand reforestation, timber stand improvement

(TSI), reforestation after harvest or conversion from low quality hardwood to pine.

7. A 40 percent decrease in the number of pines in the 2 and 4 inch diameter class occurred that will result, within 15 to 20 years, in a problem of meeting the demand for timber into which these diameters would normally have grown.

In addition, there are approximately 2.0 million acres of marginal crop land and pasture in the 4e, 6e and 7e soil subclass series that should be planted in pines. These acres presently provide negative net dollar returns and erosion on them exceeds the maximum acceptable rate of 2 tons per acre annually.

The economic importance of forestry in Mississippi cannot be overstressed:

. In 1980 forestry was the number one agricultural crop at the first processing point, valued at $535 million, ranking first in 34 of the 82 counties.

. Forestry is the second largest employer in Mississippi.

. One of every five manufacturing jobs is provided by forest industry.

. For each additional $1 paid as wages to forestry labor, total household income increases by $3.95.

. For each new forestry job created, four to five new jobs become available in non-forestry sections.

. For each $1 of timber stumpage sold, $0.43 in state tax revenue is generated.

In 1976 the latest year for which roundwood timber production and consumption figures are available for the United States, the South contributed 44 percent and its projected share will increase to 56 percent by 2030. Softwoods are projected to come mostly from the South - 80 percent of the net increase or demand. Most of the projected increases will come from private non-industrial forestlands.

In 1976 Mississippi supplied 5.3 percent of the total U.S. roundwood consumption. 4.6 percent of the softwood and 7.3 percent of the hardwood. Based upon the U.S. Forest Service's median demand projections, Mississippi's prorata share will increase to 48.6 percent (70.0% for softwoods and 148.9% for hardwoods) by 2010 and an additional 6.3 percent (7.7% for softwoods and 69.6 percent for hardwoods) by 2030, above its 1976 production.

Softwood demands are expected to increase 4.5 billion cubic feet and hardwood demands 6.0 billion cubic feet by 2030 according to the 1980 Resources Planning Act (RPA) equilibrium projections - the levels of increase consumption and use at which demands and supplies will be in balance with continuation of current timber management trends.

That is 150% of current consumption for softwoods and 300% for hardwoods; an enormous increase. If it happens, about 60-70% is expected to come by 2010 or so, less than 30 years hence.

That means economic growth and development in the forestry sector of the economy and by 2010 a 33% increase in the softwood industry capacity, jobs and income with about twice the hardwood industry capacity, jobs and income. (I emphasize 2010 because some of us here will see a good deal of that growth and have something to contribute to its achievement.)

Inventories and growth trends are adequate nationally and regionally to support the expansion of industry capacity to about 2010 with current management levels. Both softwood and hardwood inventories will continue to grow while removals will be less or equal to growth until then, but softwood inventory and growth will decline on PNIF and industry lands - most of it in the South after 2010. For hardwoods, the decline will come after 2020 and won't become serious until after 2030. These patterns become more variable at State and sub-state levels and for individual species and groups of species.

Mississippi is dedicated to provide the timber needs for itself as well as its share and possibly more of the projected demands for the Nation. We know it will bring increased dollars to our state's economy, additional jobs for our people, sustained increased tax revenues to support state and local government, and a better quality of life for all our people. Our primary thrust is to increase the rate of management and productivity levels of the 8.2 million acres of PNIF commercial forest land. To that should be added the 2 million acres of marginal cropland and pasture.

To that purpose, the Mississippi Forestry Commission (MFC) in 1980 relieved the County Foresters of most of their Public Lands responsibilities so that they could concentrate more of their limited time to one-on-one with PNIF landowners. In addition, the MFC provides many services, some free and others fee, to its PNIF landowners in managing and improving the productivity of their lands.

The Mississippi Forestry Association has also instituted a "State Forestry Productivity Committee" which in turn has formed county committees composed of volunteers from industry, consultants, State and Federal agencies. Basically they collect timber harvesting information from different sources about landowners and locations. Then they contact the landowners and try to get them to reforest if needed.

Governor William F. Winter convened a "Pathways for Forestry in Mississippi" symposium on April 5 and 6, 1983. He personally invited seventy-five participants, unquestioned leaders in forestry representing industry, education, banking, all levels of government, and landowners from all areas of the state, to share their expertise collectively. The outcomes from this first symposium, task force reports, and subsequent symposiums will provide long range goals and collective actions to be accomplished by the Forestry Community to bring about a desirable future into the 21st Century that this dynamic group has willed for forestry in Mississippi.

Studies have revealed many reasons why PNIF landowners do not reforest their lands. We feel that more one-on-one contact and technical assistance by professional foresters is the correct step. A recent study of 759 PNIF landowners who had harvested timber in the South, including Mississippi, revealed that where professional foresters advised landowners, pine reforestation increased significantly. We have a special project of two "Service Foresters" financed with 50/50 Federal cost sharing. They spend all their time working one-on-one with PNIF landowners. The results to date are pointing toward good payoffs in their assigned counties as compared to what County Foresters can accomplish in the limited time they can devote to the PNIF landowners.

Unfortunately, there are constraints as to how much Mississippi can accomplish in increasing the productivity of the PNIF lands. These constraints are basically dollars and time. The volunteers in the county productivity committees are limited as to the amount of time they can devote to one-on-one with PNIF owners because these volunteers have other obligations to fulfill for their respective firms or agencies. The same is true for MFC foresters.

The Mississippi Legislature has recognized the importance of forestry and the MFC's role by increased funding over the past several years. From 1978 to 1983 our total budget, excluding Federal funding, increased 80.9 percent. This has helped us get more PNIF acres under management and into higher productivity levels.

Over the same period, Federal funding for co-operative programs decreased 47.5 percent. In 1978 Federal funding amounted to 17.7 percent of our total budget; in 1983 only 5.1 percent. The U.S. Government continues to reduce or see fit to eliminate Federal dollars for certain programs that benefit the Nation, now and in the future. For example, Rural Fire Prevention and Control funds should be increased so that we will have sufficient well-trained forces to suppress fires quickly, especially in young pine plantations, of which there will be many more acres to contend with as we increase our annual rate of reforestation. Rural Forestry Assistance funds should be increased, especially to provide for "Service Foresters" whose role will be devoted to working one-on-one with PNIF owners. In addition, they could be working with marginal cropland and pasture owners about changing their use of these acres to pines (cheap acres to reforest as compared to cut over and harvested timber lands). Continued nursery funding is needed to assure the production of quality seedlings required in increased reforestation. Planning Assistance funds should not be discontinued but beefed up to help in State Planning for Forest Resources, in our case called "Pathways for Forestry in Mississippi". Successful plans do not cease with a printed document; they must be activated, progress monitored and revised as situations change over the years.

The second topic I will address is United States competitiveness in world wood markets and factors that impact performance in foreign trade as well as domestic trade.[1]

The United States is a major importer and exporter of wood products. Since 1950, U.S. exports of forest products, in constant (deflated) dollars, rose 400 percent; imports increased by nearly 75 percent.

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[1] Source of the following information has been taken from "Wood Use, U.S. Competitiveness and Technology", Congress of the United States, Office of Technology Assessment, Washington, D.C. 20510, OTA-ITE-210, August 1983.

An unprecedented opportunity exists for the United States to expand its exports of many forest products.

First, world demand for paper and solid wood products is expected to grow rapidly, by as much as a 50 percent increase in consumption by 2000. Projections are that world demand for industrial roundwood will grow about 2 percent per year for the next 20 years and consumptions of paper and paperboard will increase by 75 percent, wood-based panels by 55 percent, and lumber by 25 percent by 2,000.

Second, many established wood-producing nations such as the Western Soviet Union and Far East are faced with diminishing wood supplies. Although Latin America, South America and the eastern Soviet Union have vast acreages of forests, they are remote and inaccessible, and the investment needed to bring these forests into commercial production may be prohibitive.

Third, the United States has both an abundant wood resource and a highly developed manufacturing capacity compared with most other countries. The forest resource is available for expanded production and the inventory is increasing and accessible.

Most of the world's increased forest products consumption probably will come from industrialized nations, with Western Europe and Japan being the major foreign markets for U.S. forest products in the future.

World trade in forest products is shaped by the general forces of supply and demand, tariffs and traditional quotas, non-tariff barriers or distortions, and economic and governmental a treaty and an organization, has been very effective in reducing its members' tariffs and traditional quotas, resulting in an impressive growth of international trade. However, the growth of non-tariff barriers (NTBs) often poses a more potent threat to free trade than tariffs and quotas. Governmental policies and worldwide economic conditions also exert powerful influences.

In general tariffs and traditional quotas restrict imports of processed products more than raw materials. The processing of raw materials such as logs, pulpwood, woodchips, and woodpulp allows nations to capture the value added employment.

Non-tariff barriers (NTBs) or distortions are growing in importance because they are often difficult to identify and their effects equally difficult to measure. There are seven types of NTBs:

1. Quantitative Restrictions: These have become popular in recent years with the most frequently used types being new forms of quotas, embargoes, orderly marketing agreements, and voluntary export restraints. Many countries use embargoes for forest products, primarily to protect domestic resources and processing industries.
2. Non-tariff Charges on Imports: These often take the form of taxes levied at various points in the products' distribution channel.
3. Government Participation in Trade: This involves countertrade (a form of barter), purchases by national enterprises or trading companies, and government procurement policies.
4. Product Standards: Health, safety and other products standards such as the amount of hardwood pulp in kraft linerboard, plywood knots, adhesive strength, and "white pockets" - fungus remnants in Douglas-fir plywood often limit imports. However, not all product standards are developed for specifically blocking imports.
5. Administrative Practices: The rules that a country establishes and the way they are implemented and enforced can act as trade barriers. The most common types include arbitrary methods of custom evaluation, arbitrary product classification, inspection procedures, and licensing procedures.
6. Ocean Freight Rates: Conferences of nations usually set the one-way ocean freight rates for certain commodities. These rates apparently discriminate against many U.S. producers because of higher U.S. shipping costs in exporting certain grades of paper, particularly printing, writing and specialty papers.
7. Restrictions on Export-Related Services: Exporters require a broad range of services in the marketing of their products successfully overseas. Many countries

have barriers against American banks and insurance companies and may also put limitations on the ability of foreign firms to get local financing and insurance.

Worldwide or global economy involves five important factors that affect the volume and types of products traded:

1. Global Economic Conditions: It has become increasingly difficult for nations to maintain separate economic identities. For example, one-seventh of all U.S. jobs rely upon exports; the situation is similar in most of the world's developed economies. Thus, the present global recession has damaged nearly all segments of the wood industry. Furthermore, the recession is complicated by the world financial situation, especially high interest rates.
2. Currency Exchange Rates: The U. S. dollar value relative to other currencies affects the prices and competitiveness of American goods overseas. As long as U.S. interest rates are significantly higher than foreign interest rates, the dollar will probably remain strong.
3. Private Business Attitudes: World perceptions of private U.S. business attitudes can have a major impact on trade and will have to be overcome. The U.S. forest products industry needs to be more reliable and willing to make the long-term commitments that many importers want.
4. Government Policies that Hinder Exports: Government also shapes world perceptions of the United States as an unreliable trading partner. Increased willingness by the U.S. Government to use export controls or readiness to use them as an instrument of foreign policy has harmed all U.S. exporters to some degree.
5. Government Assistance to Exporters: Several U. S. Government agencies affect trade policies and offer assistance to exporters. However, the U. S. Government does not provide the level of export assistance that some other governments do.

Therefore, a wide variety of trade barriers will limit the ability of the United States to expand its exports of processed products such as lumber, panels, and paper but not raw materials such as logs, pulpwood and woodpulp.

Regarding domestic trade, no major changes in the patterns of U.S. imports of lumber, pulp and paper are expected. Substantial quantities of lumber, woodpulp, and newsprint will continue to be imported from Canada. Canadian products are competitive in U. S. markets because of their proximity to major consuming regions of the United States, the availability of low-cost transportation, and the distribution of the Canadian softwood resource.

Enclosure.

PATHWAYS FOR FORESTRY IN MISSISSIPPI

(Draft Copy)

Report No. 1

Prepared by the Mississippi Forestry Commission

FOREWORD

This report summarizes the reason for, the papers presented and actions accomplished at the "Pathways for Forestry in Mississippi" symposium held on April 5 and 6, 1983 at Jackson, Mississippi plus other actions taken by the Core Team since then.

INTRODUCTION

During the development of the Mississippi Forestry Commission five year organization plan, the need for a more comprehensive forestry plan for the entire state became very evident. The State Forester recognized the need for the Forestry Community to develop a design to collectively solve the forestry problems and seize the opportunities or forestry if the State was going to meet the needs of her citizens in the 21st Century (a short 18 years away).

In 1982, a Core Team was formed when five people were invited to provide leadership to the Pathways for Forestry project. These individuals represented all facets of the Forestry Community and were recognized leaders in forestry.

The Core Team studied the situation, adapted and pioneered a new planning process that embraces the concept of interactive planning to resolve forestry and natural resource issues.

In order that the forestry future for Mississippi might be explored completely, Governor William F. Winter convened a symposium of 70 leaders in forestry. This group spent two days exploring the forestry issues that are a concern now and that will be of concern in the 21st Century. From this symposium a consensus was developed that described the forestry future and a range of goals whose attainment will be necessary if Mississippi's forests are going to meet the needs of the 21st Century.

The attainment of these goals by the Forestry Community will assure the citizens of the State a forest resource that will serve them through the coming Century.

This document, "The First Step to the 21st Century", will provide you with information regarding the desirable forestry future for the State.

OVERVIEW OF SYMPOSIUM

Rexford A. Resler [1]

Let me commence by commending the sponsors and participants of this conference for undertaking a very forward looking, essential, but high-risk, venture. I am honored to be invited to participate in this program. My specific assignment is to attempt to summarize the key conclusions of your discussions.

It is a good beginning, an important venture, which can lead to a brighter future for Mississippi if you persist in completing the process. Your discussions reflect the knowledge that many different interests must be involved in charting the course of action. Because of the diversity of interests which will affect future actions, it is imperative that those interests be involved, become partners instead of opponents.

You have emphasized the need for discussing and promoting common goals among the many sectors in the forestry community; to promote understanding of the economic opportunities that can flow from good forest management practices; to promote more effective working relationships with the State, and I infer from the discussions, the Federal legislatures, and to take actions that will improve the understanding of students and adults of their dependence on the forest resources of this State, thereby creating a more favorable climate of public opinion now, and in the future, for forestry in this State. Indeed the public's future is inter-locked with the future of forestry in Mississippi.

While the majority of the discussion focused on actions to stimulate or encourage landowners to improve productivity of forest lands, it is clear that the implied driver for capital investments in forest land, in expanding plants and jobs, in higher level of utilization of current and future stacks of raw materials is profit. So, many of your suggestions focused on the creation of a favorable economic climate, including equitable state and federal taxes, creation of markets for stumpage at attractive prices, which in turn is largely dependent on demand for finished products.

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[1] Executive Vice President, American Forestry Association, Washington, D.C.

You have recognized the need for encouraging more plant capacity within the State rather than to continue to export to other states, the current level of raw material and jobs and economic growth that is now occurring. That suggests a series of actions which are needed to encourage greater capital investment within the State.

Your conversations reflect concern about the stewardship of land to maintain its productivity and its contributions to future generations. You have expressed an awareness of the need to manage forest land for its multiple values for timber production, for recreation, wildlife habitat, soil and water protection, and the other values. In my view, you will succeed in garnering public support as your dedication to good stewardship of the land becomes fundamental to your management decisions.

I encourage someone to take the many facets of discussion and describe that "Visions of Forestry" and the broader socio-economics implications for the great State of Mississippi for the year 2010. You have described the pathway; someone needs to synthesize that vision of the future, assuming most of the action will come to fruition.

I hope you will proceed to institutionalize regular reports to the Governor on the state of forestry in Mississippi. Not only to reflect progress, but also to highlight barriers and future needed actions. I would hope that you would also try to define the roles of participants, including the government at state and federal levels.

The following scenario written by George E. Padgett of Mississippi State University is a distillation of the vision of the future as contributed by nearly 70 foresters, natural resource managers, business, governmental and educational leaders at the Pathways for Forestry Symposium in April of 1983. It portrays where we, as a State, would like to be in the year 2010. This scenario taken with the Task Force reports will lead us as a State on the pathway to the future. I commend it to you.

William F. Winter
Governor of the State of Mississippi

A vision not yet realized;
An occasion not yet planned;
But a dream, nonetheless, is that which unfolds here.

VISIONS OF FORESTRY: 2010

It is an impressive group assembled here on this the opening day of Mississippi's 15th Annual Forestry Exposition--a three-day activity culminating the state's week-long celebration of its number one industry.

Builders, manufacturers, educators and researchers, private landowners, industrialists, legislators, and foresters from around the state and nation listen intently as Mississippi's governor welcomes visitors and participants to Expo 2010. . . .

"It is with immense pride and satisfaction that I welcome you here on this special occasion. Today's dedication of the Mississippi Forestry Research and Development Complex marks the beginning of a new era in Mississippi's economic progress.

"Surrounded by more than fifty acres of our state's most famous natural resource, the R & D Complex--constructed entirely of native Mississippi woods--includes, in addition to the auditorium in which you are now seated, the Southern Center of Excellence, a results-oriented forestry research center; the Natural Museum of Mississippi Forestry; and one of the nation's largest Forestry Exposition Halls.

"It is the realization of a dream fostered more than 27 years ago that brings us here today. It was in April of 1983 that leaders from around the state convened in Jackson to chart the pathway for forestry in Mississippi. And while it is the vision of that group which is so often cited, it is their hard work and dedication and the contributions of others who followed them from which we have reaped the extraordinary successes evident today.

"They set out to regenerate unproductive lands . . . today we have the highest annual reforestration rate in our history. They set out to recruit new primary wood-using industries . . . today our state leads the southeast in industrial relocation. They set out to develop local and export markets for our forestry products . . . no state has been more successful in marketing native products within and outside of its borders.

"But perhaps more crucially important than any of their other foresights was their perception of the need to gain the support of legislators and the various publics in Mississippi. They foresaw the need for better transportation systems to accommodate a growing forestry industry, and once legislators were convinced of the potential of wood products, a commitment was made. Subsequently, state and national law makers added their assistance by revising tax codes to maximize forestry investment, by providing grants for forestry research and the development of better equipment and production methods, and by creating attractive investment incentives resulting in an increase in the number of firms involved in secondary manufacturing of forest products.

"In the nearly three decades which have passed since that meeting in April 1983, foresters in Mississippi have overcome barrier after barrier in realizing the goals established at that initial convocation. The various entities in the forestry community have come together every year since to review their accomplishments, set new goals, and renew their commitment to a brighter and more productive future. That annual forum eventually grew into a statewide "Forestry Week" in which those involved in the forestry industry shared their dreams with all of Mississippi's citizens.

"As public interest grew, new projects and programs were initiated to emphasize the importance of forestry to Mississippi's economy. Our state has led in the establishment of elementary and secondary "Forestry

Fairs" in which students complete creative scientific, commercial, or artistic projects constructed of native woods to enter in local and statewide competition. You will see the original work of this year's finalists displayed in the Exposition Hall as you leave here today.

"It has been that interest on the part of Mississippi educators that led also to the development of a forestry textbook and the introduction of a forestry curriculum in our secondary and vocational schools. Those involved in higher education have likewise developed continuing education materials to teach landowners the economics and practices of good forestry management.

"But our mission today is not simply to review the accomplishments of the last 27 years. Rather it is to challenge each of you to continue down that pathway, further expanding our state's forestry potential. We have made significant progress in the development of forestry-related industry, in the reduction of idle acreage and the regeneration of existing forests, and in the creation of local, regional, and national markets for our products. You have worked diligently to create a statewide forestry plan that is placing Mississippi in the forefront of American forestry production and management. Let us now commit ourselves to continuing that which we have begun so well. Thank you."

Following the conclusion of the governor's remarks, visitors take the opportunity to explore the many permanent and special exhibits in and around the Research and Development Complex. Some take advantage of the near-perfect spring weather to walk the mile-long Forestry Education and Nature Trail leading through the woods surrounding the complex. Others enjoy the special exhibit of Mississippi wood crafts displayed in the Forestry Museum. Native craftsmen utilizing native woods have created beautiful and functional products of every sort from animal carvings to sculptured game sets to primitive country furniture.

Still others browse through the various exhibits in the Exposition Hall, currently a swarm of activity as elementary and high school students from around the state arrange Forestry Fair displays for competitive judging. Entries range from the simple to the complex: a scale model of a shopping mall constructed entirely from logs; a miniature working sawmill; a display and demonstration of primitive woodworking tools; and an elaborate arrangement of posters and photographs explaining and illustrating the paper production process with samples of various papers ranging from newsprint to fine quality watermarked bonds.

Another area of the Exposition Hall is devoted to exhibits by Mississippi manufacturers of wood products produced in the state, including rattan furniture, turn-of-the-century reproduction furniture, clock casings, modular homes, rustic log homes, lamp bases, cabinetry, and decorative shelving. Even manufacturers of non-wood products have brought exhibits of their products with accompanying illustrations of wood use in their production processes as fuel, moldings, forms, or scaffolding.

A final section of the enormous hall is devoted to exhibits by foresters themselves. Here visitors may view slide presentations and films depicting Mississippi's beautiful tree farms and successful wood-related industries, learn about forestry economics and management techniques, and even smell and touch samples of the state's various woods.

And as thousands of visitors attend educational forums and workshops and view the many forestry exhibits in the Exposition Hall, work continues in adjacent offices and laboratories as researchers and planners continue developing better forestry management techniques and creating new uses for Mississippi forestry products.

Even as they labor and even as the many visitors linger about the Exposition Hall or amble leisurely along the Forestry Education Trail absorbing its rich natural beauty, those of another time must leave this vision for the reality of today--until the dedicated dreamers of the present can build from their fantasies a better tomorrow.

KEYNOTE ADDRESS: ADVICE AND EXPECTATIONS

William F. Winter 1/

In the past 40 years Mississippi private non-industrial forest landowners have come a long way in the protection and reforestation of their timberland, "... we are still struggling to stay even" in terms of timber growth versus removal. Major emphasis must continue to be placed on creating additional understanding among landowners as to how to make their timberland fully productive.

Many of us know of the value of our forest land, but we don't fully understand what it takes to bring this about. Landowners must be taught more about the need to invest in tree planting and protect those we have until ready for harvest, and more efficiently use our forest lands. The forest resource is renewable forever. It can be developed to enlarge its contribution to the State's economy and environment if the commitment is there.

"I want to see a policy of increasing the wealth of our total forestry industry in Mississippi clearly established as a result of this symposium." "Zero in" on doing what we can and must do to accelerate the process of making our forests more productive "so that we won't find ourselves fighting a losing fight as forest lands are stripped and taken out of production for the sake of a quick buck."

1/ Governor of the State of Mississippi, Jackson, Mississippi

INTERACTION NOT REACTION: FORESTRY FOR THE TWENTY-FIRST CENTURY

James W. Garner 1/

Planning for Mississippi's forest resources in the Twenty-First Century must begin now. The forest resource is all-inclusive -- all things to all people: The source of

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1/ State Forester, Virginia Divisions of Forestry.
Charlottesville, Virginia

forest products for our economic well-being; trees in cities, state parks, wildlife refuges; wildlife habitat for all species and home for endangered species of plants and animals; plants to hold soil in place to prevent erosion; protection to water for drinking, swimming and other recreational activities; clean air and aesthetically appealing and restful vistas. "... consider the forest resource of Mississippi as that living organism which can contribute significantly to an improved quality of life for the Twenty-First Century." Failure to plan for the protection and development of the forest resources could result in the loss or reduction of the second largest employer in Mississippi.

The planning process doesn't end with a written plan for Mississippi. It is the starting point toward transforming our dreams into a desired forest resource for the next generation and requires three ingredients.

First, the ultimate success - or failure -- rests with you, the Forestry Community. You must be willing to listen and hear new ideas; maintain flexible attitudes that can change to reflect an openess to look ahead; remain committed to the process; and continue to be an interactive group to motivate creativity and

Second is your willingness to work through the process, share individual hopes and dreams, and maintain commitment and support to forestry. Express ideas - listen to others, not for the sake of compromise but for the purpose of consensus.

Finally, a strongly committed Governor and well informed legislature must provide the resources required for implementing changes, protecting the present forests and developing the future resource.

The successful marriage of these three will determine the future forest resources of Mississippi. "...the future does not wait for us." By working for it, the future can be closer to what we desire.

MISSISSIPPI'S FORESTRY FUTURE: DIRECTIONS FOR A NEW TOMMORROW

J. Charles Lee 1/

Toffler has said that if we do not change the future, we shall be compelled to endure it. Given the present rate of change, that may be a worse fate than reliving history because we failed to learn from it the first time around.

In creating images of the past, we seek the most accurate portrayal of what did happen. Frequently the actions that government and other institutions impose on behalf of the "public interest" discourage forest investments by the forestry community. Dick Allen is fond of saying that if government had provided an encouraging environment for forestry twenty years ago, the state would be spared its present revenue shortfalls. Appropriate harmonious interaction between government and the forestry community fosters the development of forestry policies and programs, whose achievement permit their contributions to the state's economic and social goals to be fully appreciated.

The dominant federal role in American forestry has its roots in public concerns about the Nation's timber supply as viewed at the turn of the Century. Since that time the Nation, and the States, have followed a policy of "planting trees" for the future. In the last decade, a number of states, including Mississippi, have adopted their own programs to supplement the state-federal partnership in private forestry.

The current posture of the federal government is to reduce its role in private forestry affairs. This posture and the current economic climate ... is rapidly spreading to the states, ... State policy makers will have to choose among many traditionally respected federal programs that will compete for scarce State resources.

Forestry goals need to be developed within overall state economic and environmental goals. The Council of State Government has reported several reasons for the absence of well-defined relationships between forest resources development and

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1/ Head, Department of Forest Science, Texas A & M University College Station, Texas state economic development in most states:

> Traditional view that the primary industries of forestry offer less potential for dramatic increases in per capita income than other sectors.
>
> Concern that governmental intervention in private forest development beyond promotion, management and protection i.e. toward direct investment or regulatory activities would intrude on landowner rights.
>
> The Federal role in defining forest management goals has been so dominant that a significant state role has nearly been precluded.
>
> The belief that the free market system and laissez-faire policy offer the best potential to increase timber production.
>
> The forestry community, including the industry, is ambivalent about what a necessary and proper role should be.

However, the prolonged depression in demand for forest products has demonstrated in a most cruel way the relative economic importance of forestry and forest products to the states.

Pessimist or optimist, your challenge is look beyond today in deciding what kind and the development of some ways to achieve a desirable forestry future for Mississippi. It is particularly important that Mississippi assume a positive environment for the utilization, marketing and distribution of the forest products of its soils.

The most distinguishing characteristic of the future is its uncertainty. Six key perceptions [1] have application to Mississippi and to forestry:

1. The future is not fixed, but consists of an array of alternatives from which we can choose those we wish to pursue.
2. Choice is unavoidable. Refusing to choose is itself a choice.
3. Small changes can become major changes through time.
4. The future world will probably be drastically different from the present.
5. People are responsible for the future. It doesn't just happen to them.
6. Methods successful in the past may not work in the future due to changed circumstances.

We are too interdependent to be dependent because we are susceptible to both planned and unplanned consequences of actions taken literally anywhere throughout the world. We have essentially four alternatives in exploring our desired future:

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[1] World Future Society, Washington, D.C.

1. Inactive - ride with the tide.
2. Reactive - ride against the tide.
3. Proactive - ride with the tide, but prepare for it.
4. Interactive - change the tide.

The greatest potential for success in this symposium lies in the recognition of the interdependence between Mississippi and forestry, not the undeniable link between Mississippi and forestry and forces beyond the state's borders. Furthermore, the symposium results are most likely to key on desirable public policy and programs for forestry in Mississippi. Because public investments in resource programs are necessarily long term and are made in response to assumptions about the future, these programs must be developed in response to a clear set of future related goals.

GOAL STATEMENTS

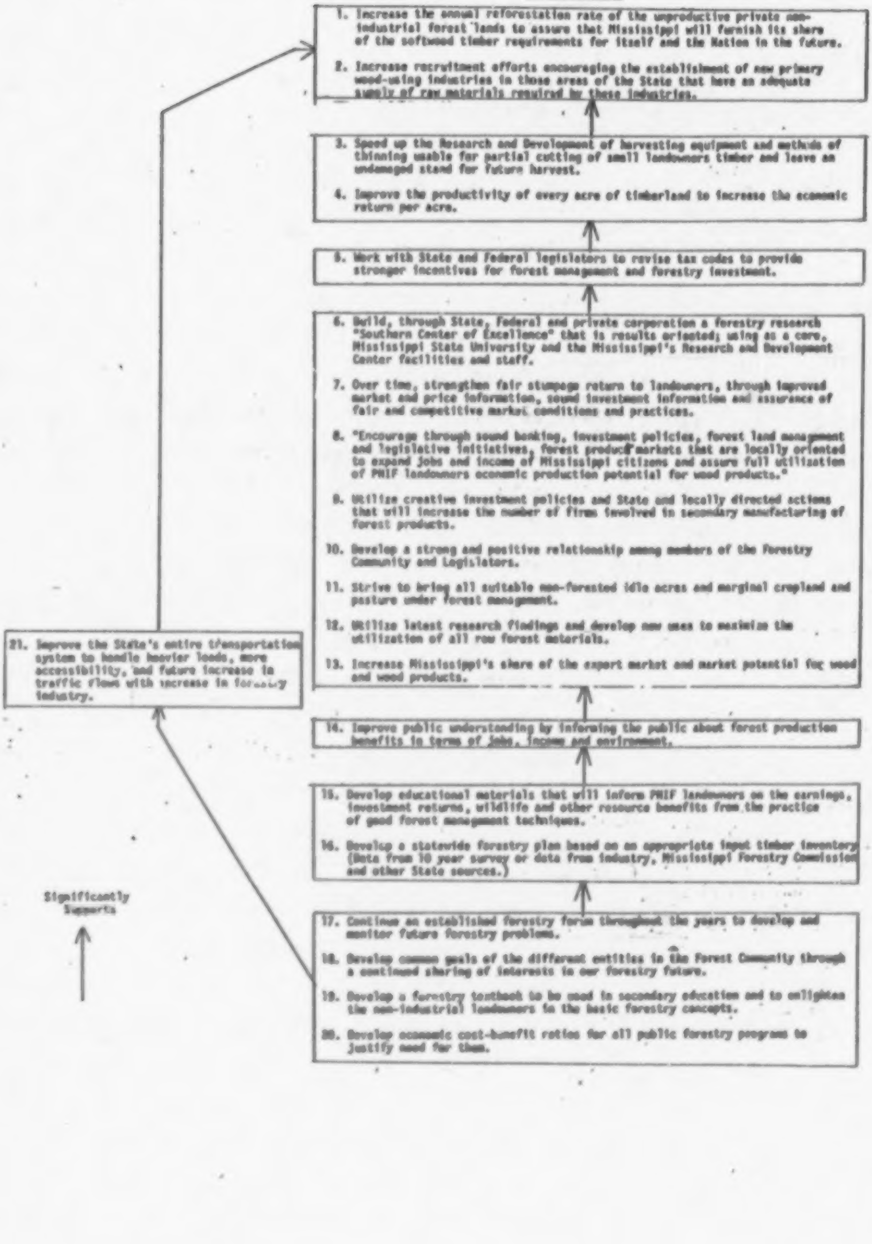
In response to a trigger question "What Needs to be Done to Bring About a Desirable Forestry Future for Mississippi by the Year 2010", the participants generated 180 goal statements. Through interactive and consensus agreement, the goals were ranked, structured and grouped according to their relevance or usefulness. The final list of 21 goals deemed most important to immediately address are shown on page 20 .

The participants also generated 107 action statements necessary to accomplish the goals.

TASK FORCES

The Core Team combined the 21 goals into eight (8) major tasks that must be completed prior to each forestry community member accepting his role in accomplishing the goals to assure the forestry future of the state. This required the following task forces: Forest Productivity, Taxation Policy, Education, Market Development, Research, Transportation, Foreign Trade, and Continuing Forum.

Goal Statements



1. Increase the annual reforestation rate of the unproductive private non-industrial forest lands to assure that Mississippi will furnish its share of the softwood timber requirements for itself and the Nation in the future.

2. Increase recruitment efforts encouraging the establishment of new primary wood-using industries in those areas of the State that have an adequate supply of raw materials required by these industries.

3. Speed up the Research and Development of harvesting equipment and methods of thinning usable for partial cutting of small landowners timber and leave an undamaged stand for future harvest.

4. Improve the productivity of every acre of timberland to increase the economic return per acre.

5. Work with State and Federal legislators to revise tax codes to provide stronger incentives for forest management and forestry investment.

6. Build, through State, Federal and private corporation a forestry research "Southern Center of Excellence" that is results oriented; using as a core, Mississippi State University and the Mississippi's Research and Development Center facilities and staff.

7. Over time, strengthen fair stumpage return to landowners, through improved market and price information, sound investment information and assurance of fair and competitive market conditions and practices.

8. "Encourage through sound banking, investment policies, forest land management and legislative initiatives, forest product markets that are locally oriented to expand jobs and income of Mississippi citizens and assure full utilization of PNIF landowners economic production potential for wood products."

9. Utilize creative investment policies and State and locally directed actions that will increase the number of firms involved in secondary manufacturing of forest products.

10. Develop a strong and positive relationship among members of the Forestry Community and Legislators.

11. Strive to bring all suitable non-forested idle acres and marginal cropland and pasture under forest management.

12. Utilize latest research findings and develop new uses to maximize the utilization of all raw forest materials.

13. Increase Mississippi's share of the export market and market potential for wood and wood products.

14. Improve public understanding by informing the public about forest production benefits in terms of jobs, income and environment.

15. Develop educational materials that will inform PNIF landowners on the earnings, investment returns, wildlife and other resource benefits from the practice of good forest management techniques.

16. Develop a statewide forestry plan based on an appropriate input timber inventory (Data from 10 year survey or data from industry, Mississippi Forestry Commission and other State sources.)

17. Continue an established forestry forum throughout the years to develop and monitor future forestry problems.

18. Develop common goals of the different entities in the Forest Community through a continued sharing of interests in our forestry future.

19. Develop a forestry textbook to be used in secondary education and to enlighten the non-industrial landowners in the basic forestry concepts.

20. Develop economic cost-benefit ratios for all public forestry programs to justify need for them.

21. Improve the State's entire transportation system to handle heavier loads, more accessibility, and future increase in traffic flows with increase in forestry industry.

Governor Winter then invited the best qualified person in Mississippi to lead the effort on a particular task force to serve as Chairman, plus other committee members (Appendix). Additional committee membership selection was left optional to the task forces.

The Core Team met with the Task Force Chairmen to discuss in depth the role of the task forces. Their purpose is to examine their goal statements, to determine the magnitude of the problems associated with the goals and accompanying action statements, to arrive at solutions (tasks) to the problems, and to secure firm commitments of "shared responsibility" in the forestry community to accomplish the tasks.

Each task force will prepare an in depth report that will address four parts:

GOAL - A broad statement that is timeless and unquantified.

OBJECTIVES - Specific, supportive directions with time and quantity constraints.

TASKS - Specific actions that are needed to accomplish the objectives and goals such as time, quantities and resources (people).

SHARED RESPONSIBILITY - Allocations of resources to achieve goals.

The task force reports are to be completed by May 30, 1984. At this time the Core Team will edit and combine them into a second "Pathways for Forestry in Mississippi" report that will be presented to the Governor.

SUMMARY

The forestry future of Mississippi has started with the end of the Pathways for Forestry symposium. Actions are being taken at this moment to ensure that Mississippi's forestry resources are expanded for present and future needs of the State and the Nation.

The Forestry Community as a whole has come together, recognized the problems, and developed goals that are being investigated for solution by task forces.

The next step will be a second "Pathways for Forestry in Mississippi" document presenting the findings and recommendations of the task forces.

Mississippi's forestry resources contribute a large portion of the State's economy, jobs for our people, tax revenues to support state and local government, and a better quality of life for all our people. Hopefully what has been done, what is being done, and what will be done with our forestry resources will determine a large measure of Mississippi's economic and environmental future.

APPENDIX A

CORE TEAM MEMBERS

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APPENDIX B

TASK FORCE CHAIRMEN

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Jack R. Rhodes, Director Industrial Development Electrical Power Associations of Mississippi, Inc. P. O. Box 7897 Jackson, MS 39204	Market Development
Dr. Warren S. Thompson, Dean School of Forest Resources Mississippi State University P. O. Drawer FR Mississippi State, MS 39762	Research
Bynum L. Meeks Staff Forester St. Regis Corporation P. O. Box 340 Monticello, MS 39654	Forest Productivity
Robert S. Moss, State Forester Mississippi Forestry Commission 908 Robert E. Lee Building Jackson, MS 39201	Continuing Forum

STATEMENT OF RICHARD C. ALLEN, FOREST CONSULTANT, AND MEMBER, MISSISSIPPI FORESTRY COMMISSION

MY NAME IS RICHARD C. ALLEN, 524 POPLAR AVENUE, PHILADELPHIA, MISSISSIPPI 39350. I AM A CERTIFIED TREE FARMER, CONSULTANT FORESTER, AND HAVE SERVED AS STATE FORESTER, EXTENSION FORESTER, SERVICE FORESTER, AND INDUSTRIAL FORESTER WITH 45 YEARS OF ACTIVE FORESTRY ENVOLVEMENT IN MISSISSIPPI.

MISSISSIPPI, FORESTRY-WISE, IS REPRESENTATIVE OF ALL THE OTHER SOUTHERN STATES - FOR EXAMPLE, THE PER CENT OF TOTAL AREA IN COMMERCIAL FOREST, THE PER CENT OF COMMERCIAL FOREST IN NON-INDUSTRIAL PRIVATE OWNERSHIP, AND THE PER CENT OF COMMERCIAL FOREST LAND IN NEED OF PRODUCTIVITY IMPROVEMENT. MISSISSIPPI'S BIOLOGICAL PRODUCTIVITY POTENTIAL PER ACRE OF COMMERCIAL FOREST IS GREATER THAN MOST OF THE SOUTHERN STATES.

54% OF MISSISSIPPI"S TOTAL AREA IS IN COMMERCIAL FOREST. THE MANAGEMENT - GOOD OR BAD - OF THAT HIGH A PERCENTAGE OF THE TOTAL STATE'S AREA WILL HAVE A MAJOR INFLUENCE UPON THE QUALITY OF LIFE FOR OUR CITIZENS.

APPROXIMATELY 75% OF THAT COMMERCIAL FOREST ACREAGE IS OWNED BY 133,000 NON-INDUSTRIAL PRIVATE OWNERS, WHO REALLY WILL DETERMINE, IN MOST PART, THE FUTURE PRODUCTIVITY OF OUR STATE'S FORESTS.

A LITTLE HISTORY, IF I MAY -

DURING THE 30'S AND 40'S, FAR-SIGHTED STATE LEADERS ENCOURAGED WILD FIRE PROTECTION, TREE PLANTING, SELECTIVE HARVEST, INCENTIVE TAXATION AND LEGISLATION TO GROW TIMBER. THOSE WHO THOUGHT OUR VAST TIMBER WEALTH HAD BEEN "MINED OUT" WERE PROVEN WRONG AND WE BECAME - AGAIN- A MAJOR TIMBER PRODUCING STATE. FROM 1946 TO 1966, WE REVERSED FROM A CUT EXCEEDING GROWTH OF THE PREVIOUS 30 YEARS

TO A GROWTH OVER CUT IN 1966 OF SOME 125%. WE WERE PUTTING OUR VAST FIBER FACTORY BACK TO WORK.

THIS INDUCED INDUSTRY TO MAKE PERMANENT - LARGE INVESTMENTS IN MISSISSIPPI - AND FORESTRY BECAME THE EMPLOYER OF 40% OF OUR INDUSTRIAL ECONOMY IN 1979. TREE CROP INCOME BECAME THE LEADING AGRICULTURAL INCOME IN 35 COUNTIES IN MISSISSIPPI, AND THE STATE LEADER OF ALL AGRICULTURAL INCOME IN 1981.

THE FEDERAL GOVERNMENT, THROUGH ITS FOREST SERVICE, MAKES AN INVENTORY OF OUR FORESTS EVERY 10 YEARS - COUNTING THE TREES BY SIZES, SPECIES, OWNERSHIPS, AND LOCATION.

THE TRENDS OF THESE 10 YEAR SURVEYS SHOULD BE USED BY OUR INDUSTRIAL DEVELOPMENT AND PLANNING AGENCIES - AND BY OUR GOVERNMENTAL LEADERS, AS KEY FACTORS IN THEIR APPROPRIATION AND LEGISLATION PROMOTION THRUSTS.

THE 1976 FOREST SURVEY PORTRAYED SOME ROAD BLOCKS THAT WERE BEGINNING TO "SLOW" OUR PROGRESS AND CONTINUED EXPANSION. FOR THE 10 YEARS - 1966-1976 - WHEN WE INCREASED OUR HARVEST LEVEL BY 96% -- DOUBLED THE INDUSTRY, SO TO SPEAK, -- WE BECAME COMPLACENT - I GUESS - IN OUR EFFORTS TO KEEP GROWTH INCREASING AT THE SAME RATE, AND LET OUR GROWTH OVER CUT FALL FROM 125% TO 13% IN SOFTWOOD PRODUCTION -- AND THIS WAS BEFORE FREDERIC'S DESTRUCTION AND THE RECENT SOUTHERN PINE BEETLE EPIDEMIC. FOR THE FIRST TIME SINCE 1966, WE WERE DANGEROUSLY OVERCUTTING OUR FORESTS.

WHAT CONTRIBUTED TO THIS ALARMING FACT?

TO BEGIN WITH, DURING THIS 10 YEAR PERIOD, OF THE 16 MILLION ACRES OF COMMERCIAL FOREST LAND IN THE STATE, WE LOST - 390 THOUSAND ACRES TO AIR STRIPS, HIGHWAYS, SHOPPING CENTERS, SUBDIVISIONS, ETC. -- AND MOST SERIOUS - WE CONVERTED 1 MILLION, 100 THOUSAND ACRES OF

PRIME SOFTWOOD LANDS TO BRUSH - BY HARVESTING WITHOUT REFORESTATION. THIS, ADDED TO THE BACKLOG OF THE PAST 20 YEARS - PUT AROUND 4 MILLION ACRES UNPRODUCTIVE IN HARDWOOD BRUSH.

THE PURE FACT IS THAT - IN THE FACE OF SURE MARKETS TO MEET WORLD DEMAND OF A SHORT SUPPLY PRODUCT - AND US WITH OVER 54% OF OUR TOTAL LAND AREA IN A POTENTIAL FACTORY TO MEET THAT DEMAND - WE "DROPPED THE BALL" AND NOW FIND OURSELVES WITH A BACK-LOG OF SOME 4 MILLION ACRES OF UNPRODUCTIVE TIMBER LANDS IN OUR STATE - 1/4 OF OUR FACTORY IS IDLE - AND WE ARE ADDING TO THIS REGRESSION AT THE RATE OF OVER 100 THOUSAND ACRES ANNUALLY.

THE OWNERSHIP OF THIS 54% OF OUR STATE IN TIMBER LAND IS, ROUGHLY -

GOVERNMENT - 10%

FOREST INDUSTRY - 15%

NON-INDUSTRIAL PRIVATE - 75%

INDUSTRY AND GOVERNMENT REFOREST AND PRACTIVE GOOD MANAGEMENT ON THEIR 25% OF STATE'S FORESTS - EXAMPLE, IN 1979, GOVERNMENT - OWNING 10% OF THE FOREST - REFORESTED 13% OF THAT YEAR'S REFORESTATION EFFORT; INDUSTRY, WITH 15% OF THE LAND - 61% OF THE EFFORT - AND NON-INDUSTRIAL PRIVATE, WITH 75% OF THE LAND REFORESTED 26% OF THE EFFORT.

THIS LARGEST OWNERSHIP, NON-INDUSTRIAL PRIVATE, IS OWNED BY OVER 130,000 INDIVIDUALS - AND REPRESENTS 12 MILLION OF THE 16 MILLION ACRES OF FOREST LAND IN OUR STATE. IT IS ON THIS OWNERSHIP THAT THE 4 MILLION ACRES NEED PRODUCTIVITY TREATMENT.

A RECENT SURVEY OF GEORGIA FORESTS INDICATES THAT GEORGIA IS NOW CUTTING 93% OF ITS SOFTWOOD GROWTH, AND THE TREND IS THE SAME IN MOST STATES AS NEW 10 YEAR SURVEYS ARE MADE.

THE 1980 RESOURCE PLANNING ACT PROJECTS A 36% INCREASE IN DOMESTIC DEMAND BY THE YEAR 2010. TREES PUT INTO THE GROUND TODAY WILL BE 26 YEARS OLD BY 2010 - FOR SOUTHERN PINE STILL 4 YEARS TOO YOUNG FOR MAXIMUM ROTATION AGE.

MISSISSIPPI FORESTS HAVE THE BIOLOGICAL CAPACITY TO DOUBLE OUR PRESENT GROWTH. THIS INDICATES A LARGE OPPORTUNITY FOR ECONOMIC DEVELOPMENT AND GROWTH OF A STATE - OR REGION - OR NATION - WITH LARGE TIMBER INVENTORIES AND GROWTH IN EXCESS OF CUT.

ADDED TO THE PROJECTED DEMAND DOMESTICALLY IS THE NEED FOR THIS NATION TO BE A NET EXPORTER OF WOOD FIBER. MISSISSIPPI, WITH WATERWAYS ON 3 SIDES, FACES AN ADDED INDUCEMENT TO GROW MORE TIMBER THAN NEEDED DOMESTICALLY. MISSISSIPPI NEEDS THE ADDED ECONOMIC WEALTH FROM THIS OPPORTUNITY - AND WE ALL NEED THE "PLUS" BALANCE OF TRADE THAT COULD BE DEVELOPED FROM EXPORT POTENTIAL.

THE AMERICAN SUPPLY POTENTIAL - WITH ITS IMPLICATIONS FOR THE NATION'S TRADE BALANCE AND FUTURE STANDARD OF LIVING MUST BE RECOGNIZED AND MOVED HIGHER ON THE LIST OF NATIONAL PRIORITIES.

WE HAVE THE CAPABILITY OF DOUBLING OUR GROWTH AND MARKETING IT DOMESTICALLY AND FOR EXPORT. THEN, WHY ARE WE NOT "GRASPING" THIS OPPORTUNITY?

THE KEY IS TO GET LAND REFORESTED - FAST - AFTER HARVEST AND MANAGED PROPERLY.

SOME OF THE PROBLEMS ARE:

1. ADVERSE IMPACT OF TAXES - STATE, LOCAL, AND FEDERAL. 40% OF THE NATION'S NON-INDUSTRIAL FORESTS ARE IN UNITS OF OVER 500 ACRES, AND 74% OF THIS OWNERSHIP IS OVER 100 ACRES. THIS OWNERSHIP MUST HAVE INHERITANCE TAX RELIEF IF CONTINUOUS CROPS OF TIMBER ARE TO BE

PRODUCED AND PREVENT LIQUIDATION TO PAY TAXES. IN MY OPINION, THE 50% MAXIMUM INHERITANCE TAX EFFECTIVE IN 1985 SHOULD BE REDUCED TO 20%.

FAIR AD VALOREN TAX MUST BE ASSURED.

TIMBER CAPITAL GAIN TAX MUST BE ASSURED OF CONTINUATION.

THE LONG-RANGE INVESTMENT NECESSARY TO PRACTICING FORESTRY MUST HAVE TAX INCENTIVES ASSURED TO ENCOURAGE THIS TYPE INVESTMENT.

2. LACK OF INFORMATION AND EDUCATION ON THE ECONOMICS AND OTHER BENEFITS OF REFORESTATION AND PRODUCTIVE FOREST MANAGEMENT IS A SERIOUS PROBLEM, ALONG WITH TECHNICAL ASSISTANCE SERVICE FORESTERS.
3. THE NEED FOR THE VARIOUS FEDERAL AGENCIES WORKING WITH FARMERS TO COORDINATE THEIR EFFORTS AND IN COUNTY ACTIVITIES ALLOCATE PROGRAM MONIES AND TECHNICAL ASSISTANCE IN PROPORTION TO THE IMPORTANCE OF VARIOUS AGRICULTURAL CROPS IN THAT COUNTY; ALSO, CUT OUT "OVERLAPS" IN ACTIVITIES AND CONSOLIDATE, STATE AND COUNTY LEVELS, FOR ADMINISTRATION, OFFICES, ECT. TO SAVE TOP DOLLARS THAT COULD BE ALLOCATED TO "WORK ON THE GROUND".

IN SUMMARY, THE NATION, AND PARTICULARLY THE SOUTH, HAS BOTH AN OBLIGATION AND OPPORTUNITY TO ACCELERATE THE PRODUCTIVITY OF NON-INDUSTRIAL PRIVATELY OWNED FOREST LANDS - THE PUBLIC, THE VARIOUS GOVERNMENTAL ENTITIES, THE INDUSTRY AND THE LANDOWNERS WILL ALL PROFIT AND ENJOY THE FRUITS OF THIS PRODUCTIVITY. THEREFORE, EACH HAS A "STAKE" AND RESPONSIBILITY IN BRINGING THIS

ACCELERATED PRODUCTIVITY ABOUT. A PROPER INVESTMENT CLIMATE MUST BE ACHIEVED AND ASSURED OF CONTINUITY TO MAKE DESIRABLE THE INFUSION OF CAPITAL IN LONG RANGE TREE GROWING INVESTMENTS.

STATEMENT OF
DR. ROBERT L. YOUNGS,
DIRECTOR, FOREST PRODUCTS LABORATORY
FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

MR. CHAIRMAN:

Thank you for the opportunity to join with the Subcommittee today and discuss forestry's needs for the future. I will direct my comments to discussion of forestry research underway and new technology available now to improve the utilization of the Nation's forest resource.

The Forest Products Laboratory, located in Madison, Wisconsin, is part of Forest Service's research organization, and has a national mission dedicated to research leading to the improved utilization of the Nation's timber resources. As a Federal laboratory, we carry out research that is designed to improve management and use of those timber resources. Much of our research is basic or long-term in nature and not appropriate for industry to conduct. However, we cooperate closely with industry in planning, conducting, and applying the results of our utilization research program. Because of the continuing economic importance of wood as an industrial raw material or fuel and because 28 percent of the commercial forest land base is in public ownership, the Government has a unique stake in insuring that new and improved timber utilization technology is continually evolving. Wood utilization research can help guide and shape emerging technology and foster the wise use of the timber resource by providing the knowledge--first, to use more kinds and parts of trees; second, to convert wood efficiently and economically into high-value products; third, to develop improved products, and finally, to extend their useful service life.

At the Forest Products Laboratory and other field stations of the Forest Service, with strong cooperation from regional research laboratories, such as the Mississippi Forest Products Laboratory at Mississippi State University, we are conducting research to accomplish these objectives. To use waste material, underutilized hardwoods and lower value species, we are emphasizing work on reconstituted board products and energy. To convert wood more effectively, we are working on new processes such as the power backup roll. This innovation permits logs with defective cores to be turned to produce more veneer. An example of new product development is truss framing for house construction. To extend useful service life, work is progressing on protection of wood from the effects of infestation by insects and disease and exposure to fire danger.

Let me give you additional details on some recent innovations. A process for producing lumber called Saw, Dry, and Rip, or SDR, is an example of research aimed at more extensive use of hardwoods. It has the potential to produce structural lumber from hardwoods. Another lumber-producing concept for hardwoods or softwoods is Edge, Glue, and Rip, or EGAR, in which narrow sawn boards are edge glued into panels and then resawn into wider boards.

Research to use hardwoods to supplement softwoods continues in pulping and papermaking. The press dry process for linerboard production could revolutionize the kraft paper industry, which is of major importance in the South. Adaptation of the process could lead not only to more utilization of hardwoods in new mills, but also to higher percentages of hardwood for existing operations.

An automated lumber processing system, or ALPS, is under test at the Southern Forest Experiment Station, working closely with Mississippi State and Louisiana State Universities. This system automatically recognizes and removes lumber defects using visual scanners and computerized control of cutting. It will improve the production of furniture parts from hardwood logs.

Structural board panels offer additional opportunities to use hardwoods in construction. This is a new industry with 12 plants already built, and several more announced, including one in Grenada, Mississippi. One new flakeboard plant using mixed hardwoods has been built in Le Moyen, Louisiana.

Together with structural flakeboards, reconstituted and composite panel products are the major new products used in construction. These products include medium-density fiberboard, and thin panelboards. In addition, composite panel products made of conventional wood veneer faces and particleboard cores are also available. Medium-density fiberboards are used primarily in furniture and cabinetry. Thin panel particleboards are used in making interior paneling, door skins, and plywood core material. Structural particleboards are used in sheathing in light-frame construction, supplementing plywood in some uses.

We generate 300 million dry tons of wood wastes each year. This material accumulates on harvest sites, and also comes from mortality, urban discards, and industrial and land clearing wastes. Some of this material could be retrieved at a cost to make it attractive for use in some products and as a source of energy.

Producing more energy from the forest could, of course, reduce our dependence on imported oil and impact positively on national security. Other important benefits would be first, increased energy independence of large industrial energy consumers, principally in the forest products industry; second, assistance to homeowners in combating rapidly increasing costs of fossil fuels; and third, creation of new sources of domestic employment. Already, the pulp and paper industry provides 50 percent of its energy from wood, bark, and pulping waste liquor; homeowners use 42 million cords of wood for fuel, four to five times the amount burned 10 years ago.

Although it is simple to burn wood, increased sophistication in using wood fuel is needed to conserve the supply and reduce emission of pollutants to the atmosphere. Technology to do this effectively is dependent on research ranging from better, less polluting combustion techniques for use in rural households to suspension and fluid bed combustors, improved cogeneration equipment, fuel cells, pyrolysis, gasification, and liquefaction for industry.

Wood products in some form have always been a primary construction material in the United States. New wood products and better light-frame construction design are means to improve utilization of wood materials, cut construction costs, and extend timber supplies. For example, the truss-framed house, a new design, can provide considerable material saving and lower construction costs. It also minimizes labor and is well adapted to energy efficiency.

The truss-framed system consists of an open web floor, trussed floors and rafters, and conventional wall studs fabricated into a unitized frame. The system has structural superiority, both in strength and stiffness, which has been demonstrated by both theoretical means and actual laboratory tests. The truss-framed system also provides superior strength through positive connection between foundation, floors, walls, and roofs for withstanding natural disasters.

New and improved construction products and practices are illustrated by other examples which may be categorized as follows: First, processed wood products may be manufactured from forest residues left from logging, from waste at manufacturing plants, or from hardwoods; second, improved methods in grading lumber, edge gluing, and the utilization of hardwood species can increase supplies of construction lumber; third, all-weather wood foundations and wood pole foundations provide and reduce construction costs; and fourth, better design of light-frame construction components, such as metal plate wood trusses, is important for reducing field labor costs and material wastes. More efficient design of wood trusses requires material properties to be represented correctly and lumber grades to be uniform. By machine grading of lumber and studies of lumber properties and truss reliability testing, better and more economical trusses can be made.

Better utilization of wood through new products and improved design can help lower housing costs and make housing more affordable. In addition, the use of forest products for construction and utilization of local tree species can provide jobs and economic development in rural areas. The utilization of abundant hardwood species for structural lumber or reconstituted panel products could provide new resources for housing construction. The aim is to provide high-quality housing at more reasonable cost.

These are but a few examples of how research has led to improved utilization of our timber resources. The payoff has been large. For example, Forest Service research played a key role in the development of the particleboard industry. Here in the South, the southern pine plywood industry can trace its origins to pioneering research conducted at the Forest Products Laboratory. At the Southern Forest Experiment Station, an economical cold-setting adhesive has been developed from southern pine bark extractives. This adhesive can replace high-cost petroleum-based products, such as the resorcinol used in laminated timbers.

In an effort to develop estimates of the economic dimensions of some of these utilization improvements, the Forest Products Laboratory has cooperated in studies of the impacts of utilization research. These studies have shown that there is a favorable return on the Government's investment.

We see exciting research possibilities on the horizon. Our research in the area of biotechnology is pointing out possibilities for biopulping wood for paper production. This past year, our scientists discovered the first lignin-degrading enzyme. This opens up possibilities for many applications, including pulping, bleaching pulps, converting lignin to useful chemicals, and cleaning up lignin-derived wastes from pulp and paper mills. We anticipate that we will be employing genetic engineering in our quest for utilization improvements in the near future. As you can see, there are many opportunities to improve the use of our wood resources. Our research program is focused on the most promising of these opportunities.

This concludes my prepared remarks, Mr. Chairman. Thank you for the opportunity to comment on this important subject.

STATEMENT OF FRED W. TAYLOR, ASSISTANT DIRECTOR, MISSISSIPPI FOREST PRODUCTS UTILIZATION LABORATORY, AND PROFESSOR, SCHOOL OF FOREST RESOURCES, MISSISSIPPI STATE UNIVERSITY

My name is Fred W. Taylor. I am Assistant Director of the Mississippi Forest Products Laboratory and Professor at Mississippi State University. My comments today, and the written statement prepared for this subcommittee, represent my views and the views of some colleagues from the university research community. Those of us in the academic community are interested in all issues that impact our world: social issues, economic issues, political issues, philosophical issues, cultural issues, etc. The statement today, however, focuses on research.

There are few Americans in 1983 who do not appreciate the importance of research, or who do not recognize the advances attributable to research. The results of research are evident in : sophisticated weapons with which to defend ourselves; rapid transportation to move us about and bring us goods and services; instant communication that puts us in touch with people, news, sports and entertainment; an abundance of high quality food; and devices that make our lives longer and happier.

We Americans not only recognize the contribution of research, but also support it. We support research with contributions to research organizations (Cancer Society, Heart Fund, etc.). We also ask our elected officials to appropriate public funds for research. Americans especially expect their Federal Government to support research in basic areas that are not likely to be funded by private enterprise, and to support research in areas that promise to benefit all people.

This statement is not to defend the need for research.

It is, instead, to highlight the need for research in forestry and wood products. The intent is to call attention to the research needs, and the potential benefits of research in the wood products manufacturing and forest land use segment of the Southern United States economy. This statement will focus attention separately on research related to land use and research related to processing and utilization of wood.

RESEARCH AND TECHNOLOGY DEVELOPMENT IN WOOD PROCESSING AND UTILIZATION

A recent survey of universities from Texas to Virginia revealed that there were 73 scientists devoting 43 scientific man years annually to forest products related research. This level of research is extremely small by any standard of comparison. It is especially small in comparison to the economic importance of the wood industry in the southern pine region.

As a nation, the United States consumes more wood (nearly 70 cubic feet) per person per year than any other country in the world. The United States, is also a major supplier. It produces 35% of the world's paper, 45% of its plywood and 20% of its softwood lumber. Much of this production is in the South. The South produces 2/3 of the pulp and 1/3 of the lumber used in the United States. The South, which did not produce plywood 20 years ago, now produces more than the Northwest.

Timber is the top agricultural product of Alabama, Georgia, Louisiana, Mississippi, South Carolina, and Virginia. The South is also a major user of forest products. Approximately 85% of the lumber produced in the South is used in the region, much of it in housing. Over

50% of the housing projects during the first five months of this year were in the South--defined by the Census Bureau to include Oklahoma, Kentucky, Maryland, Delaware, and Washington, D.C.

A report issued 5 years ago for this state (Mississippi) said that one of every 5 manufacturing jobs was provided by the forest industry. The 45,000 forest industry employees were paid over 327 million dollars in wages. Forestry and forest industry activities directly supported an additional 21,000 jobs outside the forestry sector in 1974. These figures are not current, but the importance of the forest products industry to our economy depicted by the figures is current. It is also a fact that in recent years the forest industry has consistently led all other manufacturing industries, in the state, in terms of new capital investment. I am confident that these figures for Mississippi also represent the importance of the forest products industry to other southern states. My point is that expenditures for research, in this important segment of our economy, is disproportionately low.

This statement and the figures cited are not intended to be critical of present state or federal appropriations for wood products research. The balance is excellent. University research funding in the South consists of 47% state funds, 38% federal funds, and 15% industry supported projects. Mississippi has excelled in funding forest products research. State appropriations are more than a million dollars annually. The result is that we have an outstanding research facility at which approximately 1/3 of the university associated research in the South is conducted.

I am involved in research on a daily basis. Hence, I have no illusions about magical solutions through research. I am, however, aware that without greater investment in research, we will not be able to capitalize on the potential for improved productivity and efficiency in this economically significant area. Basic research can be efficiently conducted at universities. University research is seldom proprietary. Therefore, it quickly enters the stream of knowledge. It is also assimilated by students who will be the professional wood scientists and researchers of the future.

RESEARCH AND TECHNOLOGY DEVELOPMENT IN FOREST LAND MANAGEMENT AND TIMBER PRODUCTION

The states in the southern United States are well endowed with a climate and soil conditions favorable to producing commercial timber and other forest-based goods. However, these states, including Mississippi, are not producing timber to the full potential which the resource base permits. As a consequence, highly productive forest sites lie idle or are not fully productive and the people of the region are deriving considerable less income, employment, and other benefits from this resource than could be expected under conditions of full potential.

There are several problem-related issues which contribute to this situation. Each of these issues, when properly addressed, represents a considerable opportunity for the south and Mississippi to realize substantially improved economic and social benefits from the forest resource. Major issues deserving serious attention are presented below.

A. Economic growth and development in the forest products industry is predicated, in part, in adequate long-term supplies of commercial timber and stable markets. It is imperative that up-to-date information of the status of forest land and timber and the consumption of forest products be monitored and reported at reasonable intervals.

1. The U.S. Forest Service, under authority of federal legislation is responsible for monitoring and reporting on the status of the nation's forest land and timber resources. Currently, the Forest Service provides updated land and timber information on a state and multi-county, sub-state basis at approximately 12-year intervals. A mid-cycle survey of less intensity is frequently reported.

Additional federal research and development funds are required to develop new technologies to permit the Forest Service:

a. to complete the regular survey and report the results for each state on a more frequent basis, preferably every five years; and

b. to complete the regular survey within each state on a more intensive basis for smaller geographic areas, preferably at the county level.

2. While the severe recession affecting the forest products industry in recent years has been due largely to factors external to the industry, it has demonstrated the necessity for the forestry community to broaden the knowledge base upon which its decisions are made. For example, there is now a broad debate about the inadequacy of traditional information on trends in supply and demand which have guided industrial, trade, and public forest policy for several decades. Nor is the basis for the significant changes in the inter-regional and

international competition for forest products fully understood.

Additional federal research and development funds are needed to support a substantial and impartial analysis of supply/demand relationships and marketing relationships to provide a more definitive knowledge base for forest-based industrial and trade policies. This analysis must be done in a truly global context if the outcomes are to assist the nation in building a competitive advantage in marketing its valuable forest products. The uncertainty about the adequacy of regional, national, and international supply/demand relationships reinforces the need to develop new technology to improve the economic efficiency of forest production.

3. Forest land management and timber production are undertaken by several federal agencies, numerous state agencies, a large number of companies in the forest products industry, and an extremely large number of nonindustrial private forest-land owners. Further, a large number of federal and state agencies are authorized to implement programs to influence forest land management and timber production. Unfortunately, the diversity of these activities and their impact on both forest land management and timber production is sufficiently complex that no good data base has been developed to monitor the activities, their results, nor the associated costs and revenues.

Additional federal research funds are needed to investigate an impartial study of the feasibility of developing and implementing a national "Census of Forestry" comparable to the Census of Agriculture and the Census of Manufacturers. If considered feasible, the Census of Forestry could provide on a regular, periodic basis an accounting of forest land management and timber production activities together with their input costs and output benefits including revenues. It would be desirable if some of these data were developed within the framework of the current system of national income accounts. Currently, data on many of these important issue is sparse and frequently available only from diverse sources. A more comprehensive and consolidated approach to this matter would improve our understanding of the forest resource and its role in our economy. Further, such an approach would provide the information needed to make sound forest policy decisions.

B. Commercial timber production is a long-term risky business endeavor. In the south, with current technology, approximately 18 years are required following regeneration to produce softwood pulpwood harvests, and approximately 30 years are required to produce softwood sawlog harvests. High quality hardwood sawlog and veneer log production requires a considerably longer time period. During the period between regeneration and harvest, the timber grower is subject to a diversity of risks which may reduce considerably the profitability of the investment in timber production. These risks are two types--those associated with the biological aspects of forest productivity and those associated with the financial and institutional aspects of forest productivity.

1. The risks associated with the biological

aspects of forest productivity may be reduced through improved technology to grow healthier, desirable trees to appropriate size classes in a shorter period of time. This is not an easy task.

Additional funding is required to undertake basic research to understand more fully the fundamental biological relationships in forest productivity. This includes investigations into photosynthetic processes, nitrogen fixation, fertilization and nutrient utilization, genetic engineering and tree improvement, water relations, and forest tree/pest relationships. While some progress has been made in understanding these processes and relationships for some tree species, an insufficient effort has been devoted to the diversity of species and soil/site conditions available to us. For example, less effort has been devoted to understanding these relationships for the hardwood species than for the southern pines. Further, it is estimated that almost one-third of Mississippi's 16.5 million acres of forest land is best suited to growing quality hardwood forests. A sound, fundamental knowledge of these biological processes and relationships necessarily must precede relevant applied research intended to result in new or improved forest management practices.

2. The financial risks associated with commercial timber production derive in part from the biological risks during the long time period required to produce timber crops and in part from

the institutional setting in which commercial timber reproduction takes place. For example, approximately 75 percent of the commercial forest land in Mississippi is owned by approximately 130,000 small nonindustrial forest landowners. These data are generally representative of the ownership conditions in most of the southern United States. While there is some controversy respecting the validity of some recent estimates of future supply and demand for commercial timber in the south, there is a relatively strong belief that an increasing volume of wood will be harvested from small ownerships. This is particularly true if domestic consumption of forest products exceeds conservative estimates and if a strong export market develops for forest products. However, in most cases, the small nonindustrial forest landowner is not able to commit the financial resources required to regenerate, protect, and otherwise manage a forest property for an 18- to 30-year period before harvest.

Consequently, it is desirable to provide a reasonable economic environment for timber production on small ownerships. This requires a relatively consistent and stable set of federal public policy instruments including:

a. timber production credit arrangements;

b. timber production insurance arrangements;

c. the Forest Incentives Program (FIP);

d. forest protection arrangements;

e. taxation provisions including estate taxes, tax credits, and the capital gains tax;

g. cooperative management and marketing arrangements.

Research funds are required to examine the full range of federal policy options available to or flowing from all federal agencies respecting timber production on small ownerships. These should be examined in an integrated manner for the purpose of putting in place the most appropriate mix of these options consistent with the nation's goals for timber production from these lands. Further, it is desirable that the selected mix of options be retained without revision until such time as cost/revenue relationships or timber supply/demand relationships warrant a change.

C. As most of the forest land and timber in Mississippi and the south is owned in relatively small parcels by many small owners there is a real need to undertake research and technology development to create operational systems of a scale suited to small ownerships. This need applies to operational forests management systems including regeneration systems and weed/brush control systems. Very little effort has been devoted to understanding and developing small scale, efficient, environmentally safe harvesting systems with the appropriate capital-labor mix for use on small ownerships. Without these new or improved systems, harvesting timber on small acreages will remain relatively expensive. As a consequence, many properties in need of a harvest cut will remain unharvested and, in other cases, the high cost of harvesting by conventional techniques will not only leave excessive residual volumes unutilized after harvest but will also reduce the after harvest financial returns to the landowner. In turn, future investments in commercial timber production will be less than would be the case following more efficient harvesting and higher returns to the landowner.

D. Research and technology development programs in forest land and timber production must recognize that commercial timber is only one of several goods and services produced from the forest. Society benefits from the joint production of timber, wildlife habitat, water, and recreation. While most goods and services produced in the forest, other than commercial timber, are difficult to value in monetary terms because they traditionally are not traded in the market place, they are highly valued by society and contribute to the overall well-being of the nation.

SUMMARY

In summary, this statement makes a strong plea for additional federal funding for forestry research and technology development. The basis for the legitimacy of federal funding in forestry and forestry-related research are:

1. Commercial timber is produced jointly with other goods and services from the forest. Other goods and services such as recreation, wildlife habitat, and watersheds are not traded in the market place. Consequently, the private producer bears costs for the joint production of these outputs but earns revenues from only

timber production. Society has some responsibility to assist the landowner in bearing the added costs.

2. The thousands of nonindustrial private landowners in Mississippi and the south operate in a market structure which approaches, on the seller's side, a perfectly competitive market. As a consequence, the individual timber reproducer cannot influence the price of his timber output in the market. He is not sufficiently large to undertake independent research and, even if he was inclined to do so, he could not cover his research investment costs from his timber production revenues. If research and technology development are to take place in this sector of the economy they must be publicly funded.

3. Federal funding for forestry research and technology development can be allocated to a number of federal, state or other organizations. We believe it is in the nation's best interest to have in place a well funded system which creates new knowledge and technology through research at land grant universities and which uses new knowledge to educate professional wood scientists and foresters.

Additional federal funds are needed for this purpose. We ask that you find a way to increase federal support for such research.

CHILES FARMS
P.O. Box 186
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October 13, 1983

I am James Chiles of Clarksdale, Miss. I have tree farms in Hinds and Winston Counties. I'm very much interested in the federal government continuing Forestry Incentive program (called FIP) This program should be publicized and promoted by the ASCS offices.

I am a row crop farmer also. We have a very good source of technical information from the USDA Experiment Station at Stoneville, Ms. on herbicides for all row crops. I believe we should expand the U.S. Forestry Laboratory at Stoneville to screen and test new chemicals for the Forestry Industry. We need better and safer herbicides to control unwanted vegetation in our newly planted trees without harming wildlife or contaminating our lakes and streams.

There are many new chemicals available, such as growth regulators, starter fertilisers, liquid gels for coating the roots of young trees, shock retarding compounds to limit shock in transplanting young plants. All of these compounds, plus the herbicides should be tested and evaluated at the Forestry Experiment Station at Stoneville.

Seventy to eighty per cent of all land in Mississippi is suited for timber production. Forestry should be promoted by all of us. Growing trees is good land use for most of the soils in the hill section of Mississippi.

Thank you,
James Chiles